CHAPTER FOUR
ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Chapter 4 describes the environmental impacts of each of seven alternatives described in Chapter 2. The discussion begins by listing assumptions that authors were instructed to utilize as they prepared their impact analyses. Following this, measurable "thresholds of significance" are presented. An environmental effect is deemed to be "significant" if it exceeds a threshold of significance. The discussion then addresses each of the seven alternatives in turn:

- Alternative A: Proposed Action – Habitat Conservation Plan
- Alternative B: BLM Only
- Alternative C: Tortoise Recovery Plan
- Alternative D: Enhanced Ecosystem Protection
- Alternative E: One DWMA – Enhanced Recreation Opportunities
- Alternative F: No DWMA – Aggressive Disease and Raven Management
- Alternative G: No Action

Each of these discussions includes an analysis of the cumulative effect of implementing each alternative, taking into consideration other current or reasonably expected projects, programs and activities likely to occur in or near the planning area during the 30-year term of the plan. Cumulative impacts are addressed throughout the analyses presented in this chapter. An overview of cumulative impacts is also presented at the conclusion of the analysis of each alternative.

Analysis Assumptions. The analysis of impacts was guided by the assumptions set forth in Table 4-1.

Table 4-1
Assumptions

CATEGORY	ASSUMPTIONS
Impact Analysis	• The discussion of impacts is based on the best reasonably available data. Knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas, were used to infer environmental impacts where data is limited. • Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations. • Short-term impacts would occur over a 5-year period following implementation, while long-term impacts would occur over a 5- to 30-year period.

CATEGORY	ASSUMPTIONS
Plan Implementation	• Implemented actions would comply all valid existing rights, regulations, and agency and jurisdictional policies. • Implementation of the Plan would begin shortly after adoption of the Plan by the participating agencies and jurisdictions, and all implemented actions would subsequently conform to the specific approved Plan decisions. Implementation of all actions on BLM-administered public lands would begin within thirty (30) days of signature of the BLM Record of Decision by the BLM California State Director. • Adequate funding would be available to implement the Plan. • Additional law enforcement and maintenance personnel would be made available as called for by each alternative.
Long-term Regional Trends	• Significant urban growth would continue, especially in the southern and southwestern portions of the planning area • Fort Irwin would utilize lands transferred by Congress from BLM to Army for military training activities following full compliance with FESA • The level of recreation use would continue to increase in proportion to regional population growth • BLM and Edwards Air Force Base would continue to block up lands in conformance with the land tenure adjustment strategy

Thresholds of Significance: An impact is deemed to be significant if it exceeds one or more of the significance thresholds presented in Table 4-2.

Table 4-2
Significance Thresholds

RESOURCE	SIGNIFICANCE THRESHOLDS
Air Quality	• Causes or contributes to any new violation of the National Ambient Air Quality Standards (NAAQS)(federal conformity). • Increases the frequency or severity of any existing violation of any NAAQS (federal conformity). • Delays timely attainment of any standard or any required interim emission reduction or other milestones (federal conformity). • Results in non-conformance of a federal action with applicable implementation plan (federal conformity). • Violates the fugitive dust rule • Exceeds significance thresholds established by air districts for a number of pollutants. The following thresholds are from MDAQMD and are in tons per year: • Carbon Monoxide (CO)---------100 • Oxides of Nitrogen (NO_x)--------25 • Volatile Organic Compounds----25 • Oxides of Sulfur (SO_x) ----------25 • Particulate Matter (PM_{10}) --------15
Natural Communities	• Causes any loss of wetland communities (riparian woodland, alkali springs, seeps and meadows, freshwater spring, montane meadow, desert fan palm oasis). • Results in permanent loss of more than 25% of mesquite bosque or 10% of native grassland. • Degrades or eliminates more than 10% of desert dunes with occupied habitat for target species.

RESOURCE	SIGNIFICANCE THRESHOLDS
Unlisted Wildlife and Plant Species	• Reduces the numbers or restricts the range of a species within the state by greater than 25%. • Allows for extensive, new fragmentation of a conservation area for an endemic or disjunct plant or animal species (Barstow woolly sunflower, desert cympoterus, Mojave monkeyflower, Parish's phacelia, Shockley's rock-cress, Bendire's thrasher).
Listed Wildlife and Plant Species	• CEQA: *Any* take or adverse effect to a State-listed species that is not fully minimized or mitigated. • The size of an incidental take area exceeds the size of the conservation area. • Reduces designated critical habitat within a conservation area by more than 5 percent. • Loss of any occupied habitat for Lane Mountain milkvetch or triple-ribbed milkvetch.
Desert Tortoise	• CEQA: *Any* take or adverse effect to a State-listed species that is not fully minimized or mitigated. • Any alternative that authorizes more than 1% ground disturbance within the conservation area. • Any new development or incompatible land use affecting more than 5% of the higher density tortoise areas. • Any reduction of more than 5% of designated critical habitat within the tortoise conservation area. • The size of the incidental take area exceeds the size of the conservation area. • Any allowance of sheep grazing in critical habitat. • Any expansion or creation of new OHV open areas or recreation areas in critical habitat. • Any new management action that provides for less protection than is currently provided for in Category I and II habitats, including substantial reclassification of Category I and II to Category III Habitat. • CDCA multiple use guidelines for class M, unclassified public lands, or class I within a DWMA., not overridden by other (e.g. ACEC) restrictions
Mohave Ground Squirrel	• CEQA: *Any* take or adverse effect to a State-listed species that is not fully minimized or mitigated. • Any extensive, new fragmentation of the MGS Conservation Area. • Any large scale development (greater than 2 mi^2 in size) in potential source areas on Coolgardie Mesa, Pilot Knob, or Little Dixie Wash.
Livestock Grazing	• Grazing made unavailable on public land as allotments are voluntarily relinquished. • Grazing made unavailable on five or more ephemeral allotments in DWMAs. • The loss of opportunity to utilize forage production above permitted use when climatic conditions result in excess forage being available in DWMAs. • Exclusion of cattle operations from more than 90,000 acres of perennial rangelands until June 15^{th} when ephemeral forage production does not reach the 230 Ibs./acre threshold in DWMAs. • Elimination of ephemeral sheep grazing from Middle Stoddard Allotment • Elimination of 80,000 acres of ephemeral sheep allotments grazing • Preclusion of ability to utilize perennial forage where operations have demonstrated good stewardship and allotment is in good to excellent condition and are achieving all public land health standards.

RESOURCE	SIGNIFICANCE THRESHOLDS
Mineral Development	Unavailability to exploration and development of any deposits in the following categories: • Areas of high mineral potential (or moderate potential for regionally or nationally significant commodities); • Critical or strategic metals or minerals, or minerals on the National Defense Stockpile list, especially those having an import reliance of 50 percent or more, or importance to the local economy; Preclusion of known mineral deposits, especially: • Major supplier of a commodity to a region covering several counties or states, i.e., crushed stone for landscaping; • Aggregate source needed for maintenance or expansion of a state or federal highway; • Aggregate or industrial mineral resource needed to maintain or replace public works or public and private properties impacted as a result of a state, local, or national emergency situation. Premature closure of a mineral operation, or its substantial reduction and loss of resources, due to increased costs associated with restrictions or fees.
Recreation	• Loss of access to any area of historic recreational importance • Substantial overcrowding caused by "spill over" effects resulting from closure of other areas to recreation access.
Motorized Vehicle Access	• Loss of access to private land parcels or mining claims • Loss of access to historically important recreation access points or staging areas
Cultural Resources	Potential for substantial degradation of important resources, including the elimination of important examples of the major periods of California history or prehistory[1].

4.2 ALTERNATIVE A: PROPOSED ACTION

4.2.1 Air Quality, Soils and Water

4.2.1.1 Air Quality

Introduction: Impacts would be in the form of gaseous and particulate mater that is emitted into the air as a result of the activities being analyzed. All of the pollutants subject to analysis are addressed in federal, state and local laws, statutes, regulations and rules. The federal and state ambient air quality standards define the criteria pollutants that are part of the emissions that are typically analyzed. In addition to the criteria pollutants, there are criteria for air toxics, hazardous air pollutants (HAPs), Prevention of Significant Deterioration (PSD), fugitive dust and regional haze.

The analysis is based upon various activities' potential to emit. In the case of the West Mojave

1 Resources that are listed in the California Register of Historical Resources or have been determined to be eligible for such listing, resources included in local registers of historic resources as defined in the California Public Resources Code, or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant" are considered significant resources for CEQA purposes. The fact that a resource is not already listed in a register or determined eligible for listing does not preclude a lead agency from determining that "the resource may be an historical resource as defined in the Public Resources Code…". A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

Plan, there are only a few pollutants that have the potential to be emitted. The analysis is further limited by the need to look at changes in emissions that would occur as a result of various alternative actions. Most activities that produce emissions would not be impacted by the Plan alternatives and will not be addressed in this analysis. The activities associated with the Plan that would have an impact on air quality include OHV activities, vehicle routes and designations, restoration and livestock grazing. Changes in these activities would result in changes in disturbance rates to soil surfaces and would result in changes in PM_{10} and $PM_{2.5}$ emissions. Activities associated with growth and development may emit particulates such as PM_{10} and $PM_{2.5}$ and ozone precursors including nitrous oxides and reactive organic gases. Based upon the potential to emit and emissions that are likely to be affected by the Plan, the analysis would primarily address the particulate emissions PM_{10} and secondarily the ozone precursor emissions. In addition, these two pollutants are important because large portions of the planning area are classified as federal nonattainment areas for PM_{10} and/or ozone.

Planning Assumptions for Air Quality: State Implementation Plans (SIPs) are prepared for the federal nonattainment areas. These SIPs are designed to result in compliance with the NAAQS by federal deadlines. The SIPs are implemented through a series of rules. In addition, air quality is highly regulated by a number of additional federal, state and regional regulations and rules. These regulations and rules apply to many of the activities that appear in the Plan alternatives. It is assumed that the activities would be conducted in compliance with the regulations and rules.

Expected Impact of Alternative A on Air Quality: This alternative would result in reductions in emissions of particulate matter from BLM managed lands, and corresponding declines in PM_{10} concentrations in a number of areas. This would be due to restrictions, reductions or elimination of activities and disturbed areas that have the potential to emit pollutants. Some activities would have the potential to increase emissions. These activities along with their pollutants, relative changes in emissions, time scales and locations are expected to be as described by Table 4-3.

Table 4-3
Air Quality Impacts – Alternative A

ACTIVITY	POLLU-TANT	CHANGE	MAGNI-TUDE	TIME SCALE	LOCATION	NOTES
Private land development	PM_{10}	Increase	Slight	Short term	Antelope & Victor Valleys	Due to possible short term increase in development. Long term development likely limited by other factors.
	Ozone precursors	Increase	Slight	Short term	Antelope & Victor Valleys	Due to possible short term increase in development. Long term development likely limited by other factors.
Paved roads	PM_{10}	Increase	Slight	Short & long term	Within DWMAs	Could eliminate paving as dust control measure on unsurfaced roads

ACTIVITY	POLLU-TANT	CHANGE	MAGNI-TUDE	TIME SCALE	LOCATION	NOTES
Allowable ground disturbance	PM_{10}	Increase	Up to 1% from source[1]	Long term	Within West Mojave area	Increased ground disturbance and bare ground would emit additional PM_{10}
Restoration of existing disturbances	PM_{10}	Increase	Slight	Short term	West Mojave wide	Ground disturbance and bare ground would initially emit PM_{10}. Sites would stabilize within 1-2 years.
	PM_{10}	Decrease	Slight	Long term		
Livestock grazing	PM_{10}	Decrease	Slight[2] Approximately 55% reduction from this source	Long term	Mostly within Mojave Desert Nonattainment Area	Elimination of all or portions of 12 grazing allotments
OHV route designation	PM_{10}	Decrease	Moderate[3]	Short & long term	Most would be within Mojave Desert Nonattainment Area	Wind erosion would cease as route stabilizes in 1-2 years
OHV competitive events	PM10	Decrease	Small	Short and long term	Within DWMAs & MGS conservation areas. Most would be within Mojave Desert Nonattainment Area	Due to elimination of speed events and seasonal restrictions on all events in DWMAs & MGS conservation areas
Fort Irwin Expansion	PM_{10} Ozone	None expected			Lands outside base.	Due to exclusion of public access to base, base is not subject to NAAQS. Compliance is by maintaining standards at the base boundary. All changes in activities on the base would be subject to federal conformity analysis.

Notes: 1. MDAQMD inventory of sources showed nearly 8% of PM_{10} emissions from construction and bare ground in 1990.
2. Livestock grazing accounted for .4% of MDAQMD PM_{10} inventory (1990).
3. Wind erosion from unpaved roads accounted for 20% of PM10 emissions in MDAQMD inventory (1990).

Significance: There would be a significant reduction in PM_{10} emissions as a result of Alternative A. These reductions could exceed 1000 tons of PM_{10} per year.

Federal Conformity: A federal conformity analysis is required for any federal action within any federal nonattainment or maintenance area. There are seven areas within the western Mojave

Desert that meet these criteria. These are the Owens Valley, Coso Junction, Indian Wells Valley, Trona and Mojave Desert PM_{10} planning areas and the Eastern Kern County and Mojave Desert modified ozone-planning areas. The clean air act and its implementing rules (40 CFR part 93) state that federal agencies must make a determination that proposed actions in federal nonattainment/ maintenance areas conform to the applicable implementation plan before the action is taken. In addition, the action cannot cause or contribute to any new violation of the NAAQS, cannot increase the frequency or severity of any existing violation of any NAAQS or delay timely attainment of any standard or any required interim emission reduction or other milestones.

The BLM has developed a ten-step process to comply with the federal conformity requirements. These ten steps are: (1) Determine spatial and jurisdiction applicability, (2) Describe SIP status and content, (3) Develop any necessary background information, (4) Develop air quality impact analysis, (5) Compare activity to applicable SIP provisions and rules, (6) Develop conclusion statement, (7) Prepare a formal determination, (8) Conduct an agency/public review, (9) Submit the determination to appropriate regulatory agencies and (10) Archive the results. Steps 7-10 must be completed only if the project has total emissions of criteria pollutants exceeding deminimus levels established in the regulations (40 CFR 93.153 (b)(1&2)). Most of these steps are carried out in this EIR/S.

Conformity Analysis and Conclusion: Alternative A results in significant reductions of PM_{10} emissions. All of the SIP requirements for the five federal PM_{10} nonattainment/maintenance areas are met by the alternative for PM_{10}. Ozone precursor emissions could increase slightly in the short term under this alternative. These emissions are based upon projected population growth in the region. The projected population growth as a result of this plan is lower than the projections used in the regional transportation plans and conformity statements. Because the precursor emission levels are lower than the budget established the in the regional plans, Alternative A conforms to the SIP. All emission levels are below deminimus levels, so no further conformity analysis is necessary and a formal conformity determination is not required.

4.2.1.2 Soils

Off Highway Vehicle Impacts: OHVs impact soils properties in several ways. OHVs increase soil compaction, which in turn effects infiltration and water erosion, soil moisture, wind erosion, and soil chemistry.

Most desert soils, including many sands, are susceptible to intense compaction if driven across a sufficient number of times. Places heavily used by OHVs such as pit areas, trails, and hillclimbs generally are intensely compacted. Compaction produced in most soils depends on vehicle characteristics, amount of activity, and soil water at the time of impact that on differences between soil properties. For example, increased OHV activity on wet soils would increase compaction. Some cohesion-less sands such as sand dunes, however, are very resistant to compaction whether wet or dry. Many playa soils would have considerable resistance to compaction if driven on when dry. (BLM, 1980)

Intense OHV use in steep areas (primarily hillclimbs on slopes over 20 percent) yields large increases in water erosion as well as mechanical displacement of soil. Where highly compacted trails run for long distances down gentle slopes, significant erosion may occur on relatively level terrain with slopes as low as three percent (BLM, 1980).

Most desert soils are much more susceptible to wind erosion after disturbance than in an undisturbed condition (BLM, 1980). Wind erosion occurs whenever bare, loose, dry soil is exposed to wind of sufficient speed to cause soil movement. This process would be accelerated whenever the natural equilibrium of the soil is disturbed. During a dust storm, the bulk of eroding material from soils moves only a foot or two above the soil surface where it is subject to downwind transport. Two basic processes are involved in wind erosion: detachment and transport. Detachment is the initiation of soil movement and occurs when wind force or the impact of moving particles is strong enough to dislodge stationary soil particles. After detachment, soil particles are subject to transport by wind through the air or along the soil surface until eventually deposited when wind velocity decreases (NRCS, 29palms)

Erodibility varies considerable within and among soils as a result of variations in texture, organic matter content and aggregate structure. In general, erodibility increases with increasing sand content and decreases with clay content. (NRCS, 29palms) In addition, biological crusts, microorganisms (lichens, algae, cyanobacteria, microfungi) and non-vascular plants (mosses, lichens) that grow on or just below the soil surface. Soil physical and chemical characteristics, along with seasonal precipitation patterns, largely determined the dominant organisms comprising the crust. These crusts are primarily important as cover and in stabilization soil surfaces. In rangelands, biological soil crusts function as living mulch my retaining soil moisture and discouraging annual weed growth. They also reduce wind and water erosion, fix atmospheric nitrogen, and contribute to soil organic matter (Eldridge and Greene, 1994 in USDI, 2001).

4.2.1.3 Water Quality

The primary surface water quality parameter of concern in the plan area is sediment. There is naturally high levels of sediment in the ephemeral surface water that flows in response to storm events because of ongoing geologic processes.

When the soil is disturbed by anthropogenic activities it is more susceptible to erosion. Erosion increases the sediment available in channels for transport by surface water when it occurs.

Particle size, slope, vegetative cover and distance from the waterway determine the length of time the eroded particles take to enter the waterway for transport either in the water column (suspended sediment) or along the streambed (bedload). Small particles will be transported more easily, steeper slopes and reduced vegetative cover increase the velocity of the water increasing the waters capacity to transport more and larger particles, particles in or close to a waterway will be transported first. The alluvial fans complicate these general rules because of the tendency for channels to migrate across the fan.

The suspended sediment water quality objective of the Lahontan Regional Water Quality Board is "the suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses."

Eroded sediment and other earthen materials that reach surface waters as a result of human activities are considered waste discharges under the Porter-Cologne Water Quality Control Act.

In the Mojave Desert it is difficult to quantify an increase in human caused sediment that reaches surface waters because sediment transport is part of the natural processes. Storm events that produce sufficient water to transport the sediment are infrequent and episodic so sampling the water cannot be scheduled and is inherently difficult. Equipment can be designed to take samples, but is subject to vandalism and being washed out if the flow is large.

It is easier to measure either the sediment or observe the effects of the sediment. Sediment can reduce the hydraulic capacity of stream channels, causing an increase in flood crests and flood damage. It can fill drainage channels, especially along roads, plug culverts and storm drainage systems, and increase the frequency and cost of maintenance.

Even when measuring the sediment by using sediment basins it is a challenging exercise to determine how much is anthropogenic.

A semi-quantitative determination of human caused sediment can be made by using a model to compare alternatives with each other or with existing conditions by determining directly related factors such as vegetative cover, amount of disturbed soil and soil characteristics directly related to erosion potential. Then use one of the standard soil erosion models. Because we have limited soils information in the study area this is not possible at the present time.

For this analysis water quality (suspended sediment) impacts are assumed to be proportionate to the soil erosion impacts although they may disjunct in time and place.

4.2.2 Biological Resources

4.2.2.1 Natural Communities

The proposed action affects the desert's natural communities in different ways. Conservation and incidental take of the two flagship species, desert tortoise and Mohave ground squirrel, would result

in the largest acreage impact to the two dominant communities of the flatlands, creosote bush scrub and saltbush scrub. Conservation and incidental take of the unlisted species, many of which are peripheral to the planning area, would impact smaller areas of a variety of natural communities at the desert edge. The West Mojave endemic species, particularly plants, are often found only in unique and rare natural communities, and their conservation results in nearly complete protection of these areas. Table 4-4 lists these communities and the acreage of each.

The three natural communities comprising 88% of the West Mojave (creosote bush scrub, saltbush scrub and Mojave mixed woody scrub) would receive major benefits with Alternative A and achieve conservation more in proportion to their distribution. Chaparral at the desert edge would continue to be under-represented by conservation, though large unfragmented areas are protected within the National Forests.

Impacts of recreation and route designation to natural communities are primarily cumulative in nature. Most of the recreation areas (open areas) for off road vehicles are within the creosote bush scrub, desert wash and saltbush scrub communities, though riding on playas is also popular and may impact the adjacent alkali sink scrub vegetation. In mountainous areas, most travel is confined to roads, so that the woodland communities (Joshua tree woodland, scrub oak, pinyon pine woodland, juniper woodland) are not subject to direct vehicle impacts. In mountainous areas with a large number of routes, habitat fragmentation is an issue, depending to some extent on the frequency of use.

In all areas of public lands containing the rarer and more valuable (to wildlife) riparian communities, BLM has already designated routes, primarily through the ACEC Plan process. These roads, as in the canyons of the east Sierras, Jawbone-Butterbredt ACEC, Big Morongo Canyon ACEC, Whitewater Canyon ACEC and Afton Canyon are designated to avoid major impacts to riparian dependent wildlife, such as migratory birds. Isolated springs and seeps, however, are accessible and not entirely free of route proliferation, cleared camping areas and excessive disturbance. In some cases, such as the springs in the Argus Mountains and Great Falls Basin ACEC, BLM has initiated improvements such as barriers and designated parking areas that protect the wetland communities from vehicle damage.

Additional work to define site-specific solutions for access to springs may be needed to protect important sites. The El Paso Mountains and Ridgecrest subareas will provide this analysis through the El Paso Collaborative Access Planning Area process. In other areas, such as the Juniper subregion, monitoring of the vehicle disturbance at springs (if any) is the best way to determine if adverse impacts from the route designation are taking place.

Kane Springs in the Ord-Rodman subregion is an important spring that clearly benefits from the designation of Alternative A, compared with the No Action Alternative (Alternative D). The same is true for Kane Wash, which contains a desert willow community, because the designated routes utilize the parallel utility route out of the streambed.

In the Bighorn subregion, adoption of the 1985-1987 routes presents no change from the No Action Alternative. Routes near Vaughn Spring, Mound Spring and Viscera Spring (on adjacent Forest Service lands) will need continued monitoring to determine if the relatively dense network in this location is detrimental to the riparian communities at these springs. The Forest Service review of these routes, which cross-jurisdictional boundaries, could result in a more cohesive network for the area.

Table 4-4
West Mojave Natural Communities Impacted by Alternative A (In Acres and %)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Alkali seep	59	0		0		0		59	(100)
Alkali sink scrub	10,895	1,014	(9.3)	4,138	(38.0)	5,152	(47.3)	5,743	(52.7)
Big sagebrush scrub	9,601	8,108	(84.5)	1,081	(11.3)	9,190	(95.7)	411	(4.3)
Blackbush scrub	132,603	87,343	(65.9)	7,545	(5.7)	94,888	(71.6)	37,715	(28.4)
Chamise chaparral	28,593	0		0		0		28,593	(100)
Cottonwood-willow riparian forest	11,533	6,793	(58.9)	1,571	(13.6)	8,364	(72.5)	3,170	(27.5)
Creosote bush scrub	4,025,617	459,004	(11.4)	1,320,049	(32.8)	1,779,053	(44.2)	2,246,563	(55.8)
Desert holly scrub	21,716	2,190	(10.1)	17,452	(80.4)	19,641	(90.4)	2,075	(9.6)
Desert wash scrub	34,496	4,902	(14.2)	3,518	(10.2)	8,421	(24.4)	26,075	(75.6)
Fan palm oasis	33	0		0		0		33	(100)
Freshwater seep	388	0		0		0		388	(100)
Gray pine-oak woodland	2,678	49	(1.8)	0		49	(1.8)	2,629	(98.2)
Greasewood scrub	3,662	0		1,947	(53.2)	1,947	(53.2)	1,715	(46.8)
Hopsage scrub	6	5	(83.3)	1	(16.7)	6	(100)	0	
Interior live oak woodland	589	0		0		0		589	(100)
Jeffrey pine forest	1,811	1,811	(100)	0		1,811	(100)	0	
Joshua tree woodland	10,383	4,763	(45.9)	269	(2.6)	5,032	(48.5)	5,351	(51.5)
Juniper woodland	87,167	6,960	(8.0)	1,434	(1.6)	8,395	(9.6)	78,772	(90.4)
Mesquite bosque	7,110	2,491	(35.0)	1,349	(19.0)	3,839	(54.0)	3,271	(46.0)
Mojave mixed woody scrub	689,589	378,795	(54.9)	124,710	(18.1)	503,505	(73.0)	186,084	(27.0)
Mojave riparian forest	4,687	28	(0.6)	0		28	(0.6)	4,659	(99.4)
Montane meadow	966	0		0		0		966	(100)
Montane riparian scrub	2,228	203	(9.1)	238	(10.7)	441	(19.8)	1,787	(80.2)
Native grassland	3,375	0		68	(2.0)	68	(2.0)	3,306	(98.0)
Northern mixed chaparral	992	992	(100)	0		992	(100)	0	
Pinyon pine woodland	18,773	12,077	(64.3)	1,171	(6.2)	13,248	(70.6)	5,525	(29.4)
Pinyon-juniper woodland	158,329	84,581	(53.4)	12,022	(7.6)	96,603	(61.0)	61,727	39.0)
Rabbitbrush scrub	7,842	92	(1.2)	0		92	(1.2)	7,750	(98.8)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Scrub oak chaparral	36,385	23,106	(63.5)	0		23,106	(63.5)	13,279	(36.5)
Saltbush scrub	591,713	18,897	(3.2)	218,608	(36.9)	237,505	(40.1)	354,409	(59.9)
Semi-desert chaparral	128,230	3,855	(3.0)	5,156	(4.0)	9,010	(7.0)	119,220	(93.0)
Shadscale scrub	38,602	7,194	(18.6)	31,408	(81.4)	38,602	(100)		0
TOTAL	6,070,651	1,115,253	(18.4)	1,753,734	(28.9)	2,868,987	(47.3)	3,201,664	(52.7)

The table excludes acreage in the GIS database describing landforms (lava, lakes, playas), disturbed lands (agriculture, urban) and disturbed plant communities (non-native grassland, ruderal).

Total in area excludes military lands.

Existing conservation includes ACECs, Wilderness, National Parks, State Parks, CDFG Ecological Reserves.

New conservation includes the HCA for this alternative. Los Angeles County SEAs are excluded.

Potential incidental take includes areas not under specific conservation and available for development or other use. Actual loss of these communities is dependent on location, development trends and land ownership.

4.2.2.2 Desert Tortoise

This section describes the environmental consequences of implementing minimization and mitigation measures identified in Alternative A. A brief summary statement is given for major components of the alternative, followed by one or more tables in which detailed descriptions of environmental consequences are given. This information is then used to assess the significance of impacts, as identified in CEQA and NEPA guidelines. Finally, overall benefits and residual impacts are assessed to see if regulatory standards for minimizing and mitigating take would be achieved. Table 4-5 presents the assumptions that apply to the analysis given in this section.

Table 4-5
Assumptions Regarding Analysis of Benefits and Residual Impacts

CATEGORY	ASSUMPTIONS
General	Unless otherwise noted, all discussion pertains to: • Impacts resulting from implementing Alternative A • Desert tortoises (i.e., habitat, densities, mortality, and conservation of tortoises) • Private and public[2] lands, as specified, in DWMAs, except as noted.
Benefits and Residual Impacts	• Benefits are those environmental consequences that promote, facilitate, and enhance tortoise conservation, recovery, and achieving minimization and mitigation standards • Residual impacts are environmental consequences that detract from, undermine, and hinder tortoise conservation, recovery, and the achievement of minimization and mitigation standards • Every attempt has been made to provide sufficient information, and particularly empirical data, that would allow the general public and regulatory agencies to independently assess if conclusions given herein are supported by the best scientific information available • Unless otherwise noted, statements such as “provides for better protection” and “results in more impacts” are relative to current management; in general, improvements over current management constitute “benefits”

2 Unless otherwise specified, “public lands” refers to lands managed by the BLM, and would exclude military, NPS, and other federally - managed lands.

	• Some prescriptions may lead to poor implementation, misinterpretation, and foreseeable conflicts, as they fail to indicate how other current management would need to be modified to avoid conflicts; these consequences are reported under "residual impacts"
Authorized versus Unauthorized Activities	• "Authorized activities" are those management actions that provide for new and modified uses specifically identified in the alternative; only those impacts that result from authorized activities are analyzed, and are referred to as "authorized impacts" • "Unauthorized activities" are those on-going uses and illegal activities that would not be authorized by the alternative; such "unauthorized impacts" may result, but are not analyzed • In assessing the alternative's potential to achieve minimization and mitigation standards, only "authorized impacts" are included; "unauthorized impacts" are not counted against meeting these standards

Establish Four DWMAs: Alternative A would result in a CDCA Plan amendment creating four new DWMAs, which would be managed for the conservation and recovery of tortoises and provide a means to achieve regulatory minimization and mitigation standards. The benefits and residual impacts associated with the proposed configuration of the four DWMAs are summarized in Table 4-6.

Table 4-6
Benefits and Residual Impacts of DWMA Designation and Configuration

BENEFITS	RESIDUAL IMPACTS
<u>Recent and Current Tortoise Occurrence</u> **Includes**: • 2,307 mi^2 (21% of the 11,134 mi^2 2002 tortoise range) within *four* DWMAs[3] • Good representation in central part of 2002 range • 427 of 563 mi^2 (76%) of higher density areas • 289 of 424 (68%) observed tortoises[4] • 2,115 mi^2 (96%) of USFWS critical habitat • 856 mi^2 of BLM Category I (96%) and 317 mi^2 of Category II (87%) habitats	<u>Recent and Current Tortoise Occurrence</u> **Does not include**: • 8,827 mi^2 (79% of the 11,134 mi^2 2002 tortoise range) • Poor representation in periphery of range • 136 mi^2 (24%) of higher density areas • 135 of 424 (32%) observed tortoises • 90 mi^2 (4%) of USFWS critical habitat[5] • 38 mi^2 of BLM Category I (4%) and 47 mi^2 of Category II (13%) habitats

<u>Land Management Within DWMAs</u>
• Establishes context for implementing conservation measures in DWMAs versus ITAs
• Land base is not within city limits or Inyo County, and only 25 mi^2 in Los Angeles County, so non-participation by these jurisdictions would not affect DWMA size or location
• Management facilitated by:
  • 1,595 mi^2 of public lands
  • 391 mi^2 (inclusive of private and public lands) of
	<u>Land Management Within DWMAs</u>
	• Non-participation by local jurisdictions and/or agencies could result in fewer compensation fees, and inconsistent regulatory approach that, cumulatively, could constitute an adverse impact to the conservation strategy
	• Management not facilitated by 664 mi^2 of private lands

[3] The 2,307 mi^2 tortoise conservation area includes 773 mi^2 in the Fremont-Kramer, 963 mi^2 in the Superior-Cronese, 388 mi^2 in the Ord-Rodman, and 183 mi^2 in the Pinto Mountain DWMAs.

[4] The 424 tortoises are those live animals for which UTM coordinate information was available. The actual number of tortoises may be somewhat higher. For example, although 275 tortoises were observed during sign count surveys, coordinate information was available for only 261. Even so, the same comparisons are given in all tables that follow.

[5] Critical habitat acreage does not include components within Edwards Air Force Base, China Lake, and Fort Irwin; but does include the Cuddeback Gunnery Range and the Nebo Logistics Base. Therefore, for this comparison and ones that follow, the acreage is the critical habitat outside military installations.

BENEFITS	RESIDUAL IMPACTS
wilderness management	
Land Management Adjacent to DWMAs • Mutual benefits for DWMAs and: • Critical habitat at Edwards AFB • Tortoise management area at China Lake NAWS • JTNP management adjacent to Pinto Mountain DWMA	Land Management Adjacent to DWMAs • Impacts on DWMA due to proximity of: • Fort Irwin expansion area • BLM OHV Open Areas • Urban interface at Barstow, Silver Lakes, Lucerne Valley, and other areas; DWMA configuration fails to adequately protect 67 mi^2 of higher density tortoise areas occurring in the Stoddard and Johnson Valley open areas.
Federal Permitting • The standardized approach to provide for programmatic take authorization of private projects would contribute significantly to the conservation function of Section 10(a) take authorization: • Excepting single-family development, every project site would be surveyed to move tortoises from harm's way, which is a significant improvement over current management Significant beneficial impact • Would replace current management where individual proponents assume responsibility for conservation efforts on a case-by-case basis that would be better applied at the regional level • Would eliminate permitting delays (currently 1 to 3 years), result in better compliance with FESA, and garner broader public support, all of which would benefit conservation goals Significant beneficial impact • Establishing specified management areas, defining standards, and applying them in a consistent manner would substantially contribute to the conservation function of Section 7 take authorization • Standard BMPs would be applied by the BLM, and USFWS could use them for other non-military, federal lead agencies (i.e., Federal Highway Administration, Dept. of Education, etc.) • DWMA prescriptions would provide for substantially more protection than BLM Category I, II, & III habitats, critical habitat, and other designations • Reporting and tracking impacts on likely occupied (Survey Area) and unoccupied (No Survey Area) habitats would provide for more resolution to determine actual take of tortoises versus loss of unoccupied habitats	Federal Permitting

BENEFITS	RESIDUAL IMPACTS
State Permitting • New programs would provide CDFG with a standard approach for authorizing take, which would minimize inconsistencies among regional offices, and result in broader public support of the conservation program • Advantages associated with federal permitting, given above, would mostly apply to State permitting as well	State Permitting • CDFG would issue a single 2081 incidental take permit that would apply to all participating jurisdictions. Non-participation or failure to meet milestones by one or more jurisdictions could result in withdrawal of take authorization for all jurisdictions, if effective implementation of conservation strategy would be precluded.
Compensation & Fee Structure • Would require payment of fees for construction of single-family residences in DWMAs, which is not currently required • Fees to mitigate authorized impacts on private land would be systematically applied to implement the conservation strategy on all lands, thereby augmenting agency budgets to fund implementation of measures • Would result in consistent, unified mitigation structure that would avoid current inconsistent approaches among and within permitting authorities, thereby enhancing public support of the conservation strategy	Compensation & Fee Structure
Compensation & Fee Structure • Compensation would be commensurate with the severity, type, and location of authorized impacts, which would provide for take and habitat loss that would not exceed the level of conservation provided for in return: • 5:1 compensation in DWMAs would provide for mitigation of direct and indirect impacts in the conservation area; • 1:1 compensation in designated areas constituting occupied and otherwise suitable habitats in the ITA would provide for mitigation of direct impacts, minimize impacts in the short-term, but not minimize indirect impacts in the long-term • ½:1 compensation in designated areas constituting degraded habitats, which may support occasional animals and mostly unsuitable habitat in the ITA, would provide for mitigation of indirect impacts that would result in nearby DWMAs as urban population growth is accommodated by Section 10 take authorization Significant beneficial impact	Compensation & Fee Structure

Establishing and managing DWMAs for tortoise conservation and recovery would constitute a significant beneficial impact. These areas would be specifically identified for tortoise conservation, which would better serve to direct BLM management relative to current management (see next table and discussion that follows). Since this designation would be in place for at least the next 30 years, the designation would provide for better adaptive management. This is extremely important in light of recent information suggesting that, even within DWMAs, tortoises are susceptible to catastrophic declines that have been shown to decimate the population. The designation would facilitate head starting programs,

which may be essential to repopulate areas that been heavily impacted by both recent and less recent declines.

With the exception of a few regions that are mostly comprised of private land or are not contiguous to proposed DWMAs, most of the "best" tortoise habitat would be included in this alternative's DWMAs. The DWMAs fail to capture higher tortoise concentration areas in the Brisbane Valley, Stoddard Valley Open Area, and Johnson Valley Open Area, but still capture 427 mi^2 of the 563 mi^2 (76%) found within the planning area. Defined boundaries would enhance land managers' abilities to implement conservation programs and provide for better law enforcement.

DWMAs were not identified relative to county boundaries, so they would still be designated within the boundary of a non-participating county. In such a case, the county would not be obligated to implement protective measures. Proponents of private projects in that county would not receive benefits of streamlined permitting and reduced costs, and the county would be required to permit projects on a case-by-case basis, as in the current situation. Protective measures would still apply on public lands within that jurisdiction. No DWMAs are proposed within city limits.

Designate DWMAs as ACECs: Alternative A proposes a CDCA Plan Amendment to designate public lands within DWMAs as ACECs. The West Mojave Plan would serve as the ACEC Management Plan, which identifies "…aggressive management actions to halt and reverse declining trends and to ensure the long-term maintenance of these critical fish and wildlife resources;" and to "…ensure that protective measures receive priority with regards to preparation, implementation, and funding" (CDCA Plan). The benefits and residual impacts associated with new ACEC management by the BLM are summarized in Table 4-7.

Table 4-7
Benefits and Residual Impacts of Designation and Management of DWMAs as ACECs

BENEFITS	RESIDUAL IMPACTS

BENEFITS	RESIDUAL IMPACTS
Size Relative to the Existing Tortoise ACEC • Net increase of 1,555 mi^2 of public lands within ACECs established expressly to protect tortoises, which is 39 times larger than the only existing one (DTNA at 40 mi^2)	Critical Habitat versus New DWMAs • Until such time as critical habitat boundaries are modified to conform to DWMA boundaries, a management problem could exist. Interim measures are not identified to resolve foreseeable conflicts where critical habitat would occur outside DWMAs and non-critical habitat occurred inside DWMAs. It is unknown how USFWS' "adverse modification" determination would apply to non-critical habitats in DWMAs.
BLM ACEC Management • Modifying existing ACEC management plans to be consistent with new prescriptions would result in fewer management conflicts • The designation and programmatic prescriptions would better serve for consistency between the Ridgecrest and Barstow field offices of the BLM, which manage all of the Fremont-Kramer (Ridgecrest) and the other three DWMAs to the east (Barstow) • New ACEC prescriptions would provide for more protection on public lands than is provided for under guidelines for Class M or unclassified public lands	BLM ACEC Management
BLM Management of Category I, II, & III Habitat • New ACEC prescriptions would replace BLM Category I & II habitat management goals; new prescriptions are specific, scheduled actions that would be implemented immediately and function in the long-term, which would improve BLM management. • All public lands within DWMAs would be reclassified as Category I Habitat. This would not substantially change management of 1,173 mi^2 of Category I & II habitats, but would result in somewhat better conservation management on 132 mi^2 (10%) of Category III Habitat in DWMAs	BLM Management of Category I, II, & III Habitat • 85 mi^2 of existing Category I and II habitats on public land outside DWMAs would be changed to Category III, replacing relatively protective goals (maintaining and/or increasing stable, viable populations in Category I & II) with less protective ones (limit declines through mitigation in Category III)

BENEFITS	RESIDUAL IMPACTS
Plan Implementation • Importantly, BLM is obligated by the CDCA Plan to prioritize funding for programs driven by ACEC management, which would ensure that limited funding and staff time are focused in areas where tortoise conservation would be most meaningful • Many prescriptions would be the same for BLM and private jurisdictions, which would provide a consistent unified approach to minimize and mitigate impacts across multiple jurisdictions • The West Mojave Implementation Plan (Appendix C) identifies specific instructions and timeframes that would govern planning for and implementation of those measures that require actions following plan adoption • Importantly, milestones and reporting requirements would establish the framework for USFWS and CDFG to ensure that the overall program is being implemented and functioning as intended; strong incentive to implement measures on public lands, as city and county take authorization could be withdrawn if milestones are not met. Significant beneficial impact.	Plan Implementation

ACEC management would constitute a significant beneficial impact relative to BLM management under the current habitat classification. It would augment and refine protection ostensibly provided by the critical habitat designation. ACEC prescriptions would serve as specified management actions that are much more protective than class guidelines given in the CDCA Plan. The alternative would result in an ACEC that is 39 times larger than the DTNA, which is the only current ACEC managed for tortoises. Specified prescriptions would strengthen protection in places where the Class M and unclassified public lands guidelines would fail to do so. Although the fee structure pertains to both private and public lands, it would ultimately result in more income for management programs on BLM-managed lands. Importantly, BLM managers would be responsible for considering and implementing ACEC prescriptions as a relatively higher priority, as directed by the CDCA Plan.

BLM Multiple Use Class Designations: Alternative A would result in no changes to current BLM Multiple Use Classes in DWMAs. Specific allowances and restrictions that may significantly contribute to or detract from tortoise conservation are given in Appendix L, CDCA Plan, Element Guidelines. Table 4-8 summarizes the beneficial impacts of maintaining Class L and adverse impacts of maintaining Class M and unclassified public lands.

Table 4-8

Benefits and Residual Impacts of Maintaining Current Multiple Use Classes in DWMAs

BENEFITS	RESIDUAL IMPACTS
• Class L lands would continue to be managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.	• Class M and unclassified public lands would continue to be managed under guidelines that allow for uses that would be prohibited or restricted in Class L.
	• Unclassified public lands would be maintained in the southern portion of the Fremont-Kramer DWMA, west of Highway 395; see CDCA Plan for multiple uses allowed under this classification, which allow for many activities that would not be allowed under either Class M or L
ACEC Prescriptions Supercede Class M and unclassified public lands • Formal ACEC Management Prescriptions that would provide more protection than Class M and unclassified public lands guidelines affect the following uses[6]: plant harvesting, livestock grazing, motorized vehicle access, recreation, and waste disposal	ACEC Prescriptions Supercede Class M and unclassified public lands • Would allow for the following types of development and uses on Class M and unclassified public lands in DWMAs: new agriculture, including biosolids fields; development of nuclear and fossil fuel power plants; discretionary approval of routes by BLM Field Office Manager without level of review called for in Class L; recreational events on "existing" routes of travel as opposed to "approved" routes of travel; and pitting, starting, finishing, and spectator areas would be allowed
• 220 mi^2 (52%) of higher tortoise densities found in DWMAs would be managed as Class L	• 25 mi^2 (4%) of higher tortoise densities occur on unclassified public lands
	• Inconsistent with BLM's NECO and NEMO plans for CDCA public lands, where Class M and unclassified public lands throughout DWMAs were re-designated as Class L to provide relatively more protection

Maintaining Class M and unclassified public lands in DWMAs may result in adverse impacts. In particular, CDCA guidelines would allow for many uses on the 25 mi^2 of unclassified public lands, which are mostly located around the Iron Mountains and south of Edwards Air Force Base. Some of the very highest tortoise sign counts occur north of Hinkley, in the Mud Hills/Water Valley area, which is Class M. Portions of the three tortoise concentration areas in the Ord-Rodman DWMA are also designated as Class M. These classifications would allow development that is inconsistent with tortoise conservation, and none of the specific ACEC management prescriptions alleviate the potential for these developments to occur. Depending on the type of development and the location, there is the potential for significant impacts to occur in higher density areas on these lands.

1% Allowable Ground Disturbance (1% AGD): Alternative A would authorize each participating jurisdiction to develop up to one percent of its land base within associated DWMAs. The benefits and residual impacts of this program are summarized in Table 4-9.

Table 4-9

[6] General categories are given for beneficial and adverse impacts; specific allowances and restrictions are given in Appendix L. Formal ACEC Management Prescriptions that would augment Class M and unclassified public land management are identified in pertinent sections, and would require CDCA Plan amendment.

Benefits and Residual Impacts of 1% Allowable Ground Disturbance

BENEFITS	RESIDUAL IMPACTS
Function to Minimize Impacts • The 1% AGD would ensure that habitat loss in DWMAs would not exceed the 23 mi^2 authorized • Implementation Team would annually assess habitat loss within each jurisdiction, which would ensure that impacts in DWMAs do not exceed authorized levels • Would ensure that authorized loss of habitat (Survey Area of 1,863 mi^2 in the ITA outside DWMAs[7] and 23 mi^2 in DWMAs) would not exceed 1,886 mi^2, which compares to 2,307 mi^2 in DWMAs, intended to offset authorized impacts • The above numbers are important in that they indicate there would be 2,307 mi^2 of conservation area compared to 1,886 mi^2 of take area; the conservation area, then, would be 421 mi^2 larger than the take area, and as described in many places, constitute higher quality habitats than those lost from the ITA • Would minimize and distribute take in DWMAs more efficaciously than if there were no limit or if take was allocated on a region-wide basis, irrespective of jurisdictions	Function to Minimize Impacts • Would not function in the long-term to minimize indirect impacts of authorized activities [e.g., as when a tortoise is crushed by project-related traffic (indirect impact) subsequent to development of the quarry site and road construction (direct impact)] • Does nothing to regulate authorized uses on public lands, as it would only pertain to projects resulting in authorized ground disturbances
• On a regional scale, would ensure that all authorized development would not occur in a single jurisdiction, which would be possible if the AGD were allocated throughout DWMAs, as opposed to per jurisdiction	• On a local scale, could allow clustered development within a given jurisdiction to extirpate local tortoise populations, sever critical linkages, etc. • Does not recognize that there are higher density areas that have not apparently been affected by newer and older die-off regions; would have been more effective if differentially applied to avoid such areas

If implemented as envisioned, the 1% AGD concept would provide for a significant beneficial impact. Alternative A, however, lacks guidelines that minimized the likelihood of losing local tortoise populations to large-scale clustered development. Nor does it prevent development in higher concentration areas that have not, thus far, experienced detectable regional die-offs. This could be a significant impact, depending on size and location of the development.

Private Land Acquisition and Public Land Disposal: Alternative A identifies primary goals for land acquisition, without specifying how, when, or where acquisition would occur. There is a general assumption that newly acquired private lands in DWMAs would be transferred to the BLM, which would be responsible for implementing protective measures. Given the lack of a more specific acquisition program, and assuming BLM management of newly acquired lands, benefits and residual impacts are presented in Table 4-10 as they would occur if acquisition occurred under the given

[7] The 1,863 acre tortoise incidental take area is derived as follows: includes all private lands outside DWMAs that are within the 2002 tortoise range; excludes No Survey Areas, where tortoises are presumed absent, and take is not anticipated; nor does it include BLM lands, which are not identified for unlimited authorized take. The BLM would still be obligated to consult with the USFWS for development on public lands, so they are not included in the ITA take acreage.

scenarios.

Table 4-10
Benefits and Residual Impacts of Private Land Acquisition and Public Land Disposal

BENEFITS	RESIDUAL IMPACTS
Acquisition Priorities • Provides data that would allow BLM to acquire private lands that would most likely alleviate observable human impacts and promote conservation • The Implementation Team would prioritize acquisition based on tortoise density, resulting land consolidation, and facilitation of conservation programs to be implemented • Identifies general acquisition goals and specific protective measures that would promote tortoise conservation	Acquisition Priorities
BLM Management • Would facilitate signing, fencing, predator management, and other programs • Would allow for expanded law enforcement capabilities • Would reduce likelihood of new residential and related urban development occurring in DWMAs (i.e., smaller 1% AGD on private lands, which would more likely be developed than public lands) • Would provide for benefits given in other tables such as mining, utilities, etc.	BLM Management • Compensation fees by themselves would be insufficient to implement all programs otherwise facilitated by consolidated public land ownership; no provisions are identified to indicate how BLM's budget would be supplemented to ensure timely implementation of protective measures • Would facilitate mine development on newly acquired public lands if mineral entry is not withdrawn
BLM Land Tenure Adjustment (LTA) • Would provide for new context for land tenure adjustment to promote tortoise conservation in DWMAs • Ensuring that all lands within DWMAs are identified for retention or consolidation (i.e., no disposal zones) would ensure no transferal of public lands to private ownership, which would benefit the conservation program	BLM Land Tenure Adjustment (LTA)
Motorized Vehicle Access • Facilitates route designation and implementation of route closures on existing public lands • Ensures that route designation on newly acquired lands would occur in a timely manner and ultimately benefit the conservation program	Motorized Vehicle Access

Agriculture: Alternative A would not authorize new agricultural development on BLM Class L lands. However, agriculture may be allowed on public and private lands in Class M and unclassified public lands, including those within DWMAs. The benefits and residual impacts resulting from agricultural development are listed in Table 4-11.

Table 4-11
Benefits and Residual Impacts of New Agricultural Development

BENEFITS	RESIDUAL IMPACTS
• 1% AGD would apply to new agricultural development on BLM Class M and unclassified public lands in DWMAs	• Unchanged current management would allow agricultural development on BLM Class M and unclassified public lands in DWMAs, some of which occurs in higher density areas • Agricultural development could occur on private lands in DWMAs without benefit of clearance surveys or implementation of BMPs

The only existing agricultural development in DWMAs occurs around Harper Lake and in the Fremont Valley. Most active agriculture occurs in the Antelope Valley, Mojave Valley and along the Mojave River, in the tortoise ITA. Although agriculture may be allowed on Class M and unclassified public lands and may occur without authorization on private lands, it is unlikely that new areas in DWMAs would be planted in crops. However, establishing new biosolids fields (animal waste products spread over the land to produce fertilizer) is a form of agriculture that could occur and result in unregulated direct and indirect impacts to DWMAs. Such fields already occur in the western part of Fremont Valley, near Koehn Dry Lake. The failure of the alternative to prohibit new biosolids fields from being established in DWMAs, other than as a component of the relatively low-priority suggested disease management strategy, could result in significant impacts, depending on the location and frequency of occurrence.

Commercial Filming: Alternative A would result in no changes to current BLM management of commercial filming on public lands. Filming on private lands in DWMAs would be allowed, and subject to new protective measures. Benefits and residual impacts are described in Table 4-12.

Table 4-12
Benefits and Residual Impacts of Commercial Filming Activities

BENEFITS	RESIDUAL IMPACTS
• Would result in programmatic implementation of protective measures on private lands, which currently do not exist • Would result in maps and brochures that direct filming impacts away from DWMAs and higher density areas to non-DWMA lands and lower density areas	• Allows filming activities in higher density tortoise areas, particularly in DWMAs

Commercial filming is already regulated under BLM management on public lands, and this alternative would strengthen protection on private lands both inside and outside DWMAs.

Construction: Alternative A would provide incidental take authorization for miscellaneous construction activities in DWMAs. The 1% AGD concept, construction of roads and utilities, and development of agriculture, mines, and landfills are related topics discussed in other sections. This section describes area designations, protective measures, and the benefits and residual impacts that would result in DWMAs, as described in Table 4-13.

Table 4-13
Benefits and Residual Impacts of New Construction Activities

BENEFITS	RESIDUAL IMPACTS
• Fee compensation program, 1% AGD, clearance surveys in designated Survey Areas (including all DWMAs), implementation of BMPs, and other programs would result in significant beneficial impacts, resulting in fewer direct impacts in the ITA, and fewer direct and indirect impacts in DWMAs	• New construction of landing strips and airports, and new nuclear and fossil fuel power plants, would be allowed on BLM-designated Class M and unclassified public lands, but would not be allowed on Class L lands. Given the coincidental occurrence of Class M and unclassified public lands with most of the habitat supporting the highest tortoise densities, this type of new construction would be allowed in areas known to support the highest densities of tortoises
• Would marginally improve take avoidance during construction of single-family residences in DWMAs, which is not currently provided for • Would require reconnaissance surveys for projects with multiple alternatives to help choose the alternative with the fewest impacts	• Allows for construction of single-family residences in Survey Areas without clearance surveys, BMP implementation, or mandatory reporting of the number of tortoises affected, which is a continuation of current management, but not likely a significant impact, as most homes would be constructed in No Survey Areas and 1/2:1 compensation areas
• Would provide for consistent standards being implemented across multiple jurisdictions that would improve current management, as described elsewhere	• Level 2 BMPs would be restricted to DWMAs and SRAs, but would not be applied to other tortoise concentration areas outside the two SRAs

Minimization and mitigation measures that would apply to new construction in DWMAs would result in significant beneficial impacts, as follow. All undeveloped lands in DWMAs would be designated as tortoise Survey Areas, where all tortoises would be moved out of harm's way prior to ground disturbance. Relatively more protective Level 2 BMPs would be applied to all new construction projects in DWMAs. Where more than one alternative site would satisfy a proponent's project requirements, reconnaissance surveys would be performed. The proponent would consult with the Implementation Team to choose the alternative that would result in the fewest impacts to tortoises and still satisfy the proponent's needs.

Current take authorization under Section 10 requires that proponents acquire a 10(a) permit based on results of presence/absence surveys, and that protective measures given in the HCP function to minimize and mitigate impacts when they are implemented several months or years later. Whereas this has resulted in compensation for lost habitats, it has not necessarily resulted in immediate tortoise protection, as no tortoises have been handled on any of the nine projects permitted thus far. Under new management, tortoises would be moved from harm's way *where they occur*, as opposed to where they *likely* occur. This programmatic approach would avoid significant impacts, provide for a more streamlined permitting process, and ultimately benefit both project proponents and tortoise conservation.

Disease Management: Too little is known about tortoise disease to identify a functional disease management plan. Enhanced education and law enforcement would have beneficial effects, depending on how and where those actions are implemented. Alternative A continues current

management, which is to have local BLM, CDFG, and USFWS staffs participate in MOG TAC programs and meetings on disease. It also presents a disease management plan, although it assigns a relatively lower priority to implementation of this plan. Strengths and weakness associated with the proposed disease management plan[8] are given in Table 4-14.

Table 4-14
Benefits and Residual Impacts of Disease Management

BENEFITS	RESIDUAL IMPACTS
• Would serve as a place-holder that ensures that the latest "acceptable" (from either USFWS and/or MOG) disease protocol becomes part of future management • The "Disease Management Trust Fund" would ensure that funds are ear-marked and immediately available to expeditiously implement new disease management actions, which could not occur in the absence of such a fund	• Recent evidence suggests that URTD may rapidly spread through the population, which may be particularly adverse in DWMAs where higher density areas are concentrated • Alternative does not provide funds for researchers to target interface areas that appear to be the leading front of URTD, and to study subpopulations (i.e., south of Mud Hills, where tortoises do not appear to (yet) be affected by regional die-offs • Alternative would have been strengthened by fencing culverts and strategically located roads.
<u>Positive Aspects of Alternative</u> • If implemented, would result in eliminating biosolid fields from DWMAs (i.e., existing field in Fremont Valley) and prohibiting new biosolid fields • Monitoring potentially toxic elements from dust sources would help to test the hypothesis that dust sources are (or are not) responsible for elevated levels of these elements • Monitoring tortoise health could lead to a better understanding of the cause of catastrophic die-offs, particularly if die-offs occur where there is no clinical evidence of disease • Epidemiological studies of herpesvirus is a very important, relatively straight-forward research project that would result in an ELISA test, which has pragmatic uses in determining the distribution and prevalence of this disease • Field-based research into URTD, herpesvirus, and other diseases would be very useful, as most previous studies have been conducted in laboratory settings	<u>Negative Aspects of Alternative</u> • *Quarantine management* implies that the transmission of URTD occurs along some "front" (i.e., as in spreading edge of a fire), that catastrophic die-offs are known to be caused by disease, and that erecting fences would stop disease spread and die-offs, none of which is supported by current knowledge. The approach would result in additional habitat fragmentation, and would do nothing to repatriate tortoises inside fenced areas where the "trigger has already been met."
<u>Measures already covered by other programs</u> • Fencing DWMA boundaries in appropriate places, implementing head starting, education, improving habitat quality by reducing available routes and reducing/eliminating ground disturbance, salvage protocols for ill and dying tortoises are already included in other programs	<u>Measures for which there are no foreseeable benefits</u> • Eliminating biosolid fields to reduce sources of excess nitrogen is speculative and ignores the fact that atmospheric nitrogen is the primary source of deposition, which would not be reduced by the action • Phylogenetic studies have already determined that West Mojave tortoises are relatively homogeneous (Dr.

[8] Dr. Michael Connor, Executive Director of the Desert Tortoise Preserve Committee, provided the basic outline for disease management that is assessed in this table. The outline was provided to the WMP team during Task Group 1 planning, at a time when "coordination with the MOG" was the only identified proposal being considered.

BENEFITS	RESIDUAL IMPACTS
• Increased law enforcement in higher density areas may result in better public education and apprehending members of the public attempting to release sick pets into the new DWMA, conservation areas	Morafka, pers. comm.), and there is no identifiable practical application of new results to justify spending funds on such studies • *Experimental interventions* would result in manipulation of wild animals where there is no clear evidence that additional food or water would make animals any more (or less) susceptible to disease; it may result in negative effects of having wild animals rely on resources that are naturally limiting; even if successful, there is no pragmatic means of applying results to regional populations.

The alternative provides for maintained communication with the MOG and, except for contingency funding, would provide no new means of counteracting URTD, herpesvirus, and other tortoise disease. This is not a failing of the alternative, so much as a statement of how little is known, and how little can therefore be done with regards to addressing disease threats. The Disease Management Trust Fund is considered one of the most pragmatic ways to ensure that break-through disease management tools (presently unidentified) could be implemented expeditiously. Spending money at the present time in the guise of "disease management" would detract from other conservation programs with more-or-less known results (i.e., highway fencing, increased law enforcement), and result in premature expenditure of limited funds without any scientific basis to support the expenditure. "Disease research," on the other hand, remains a high priority item needed to identify pragmatic management tools.

Older and more recent die-off regions, if associated with spread of disease, suggest that URTD or some yet unidentified disease may spread rapidly through denser tortoise populations. A number of measures identified above in the right-hand column may have strengthened disease management, but are not part of the alternative (see, however, Alternative F).

Drought: Alternative A does not directly address the threat of either short- or long-term drought. However, some prescriptions would enhance tortoise conservation during drought periods. Benefits and residual impacts are summarized in Table 4-15.

Table 4-15
Benefits and Residual Impacts of Measures to Counteract Drought

BENEFITS	RESIDUAL IMPACTS

Motorized Vehicle Access • The single most effective measure to alleviate human impacts during time of drought is to minimize vehicle use within washes, which would be accomplished by closing 117 of 177 linear miles (66%) of routes identified as occurring within washes in DWMAs. There are certainly more than 177 linear miles of washes in DWMAs, however, since route use would be restricted to only those routes that are designated as open, washes that are not included would not be available for vehicle use, which would be a very significant beneficial impact. • Route reductions in higher density tortoise areas in DWMAs would serve to alleviate human-induced stresses during drought periods	Motorized Vehicle Access • Alternative would not close 60 linear miles (34%) of roads in DWMAs that coincide with washes • Alternative fails to identify specific measures that would be implemented in higher density tortoise areas, which are most likely to benefit from additional protection than would be implemented during periods of prolonged drought; temporary, emergency closures of additional routes in higher density tortoise areas would have resulted in less stress than would occur with Alternative A.
Feral Dog Management • Benefits associated with feral dog management would be particularly important during periods of drought, when feral dogs may be more likely to prey of tortoises as other prey items become less available	Feral Dog Management

The alternative to allow vehicle use in only those washes designated as open is a significant beneficial impact, as it replaces a policy that allows vehicle use wherever there is evidence of prior use. In the Ord Mountain Pilot Study, about 25% of the potential routes were actually washes, with and without vehicle tracks (LaRue 1997). The current route network identifies 177 linear miles of wash routes, 117 miles of which (66%) have been identified for closure. It is very likely that the digitized routes within washes significantly underestimates the actual number of washes that are being used for vehicle travel (i.e., compared to the hydrological features identified by the Mojave Desert Ecosystem Program, for example). However, the alternative would allow for vehicle use in only those washes that are designated as open, so the non-digitized wash routes would not be available for vehicle use.

Tortoises concentrate their foraging activities around washes (Jennings 1993), often burrow in wash banks or on adjacent slopes (Baxter 1988), and may occupy burrows closer to washes during periods of drought (Circle Mountain Biological Consultants 2002). Where OHV use in washes is common, tortoises are more at risk. They are already physiologically stressed by lack of both food and water. Since they are less active during drought but often lay at least one clutch of eggs, both animals and nests are in harm's way where heavy vehicle use occurs. Shrubs often take on a dull appearance and desiccate (dry out) during a single year of low rainfall. Because wash-side growth is denser than growth in adjacent open lands, there is increased risk of fire in washes where camping, shooting, and vehicle use is more common. Minimizing these and numerous other impacts (see Chapter 3) is perhaps the only practical thing that managers can do to minimize impacts associated with drought, and is a significant beneficial impact.

Education: Alternative A would result in hiring a subcontractor to produce and implement an education program throughout the planning area. Table 4-16 summarizes the benefits and residual impacts associated within this program.

Table 4-16
Benefits and Residual Impacts of Education Program

BENEFITS	RESIDUAL IMPACTS
• Program would result in outreach to local schools, museums, user groups to advise them of the conservation efforts and facilitate cooperation to achieve goals	
• Contractor would develop a standard education program to be given to construction workers, which would replace the current situation of case-by-case education programs	
• The education program would target pet owners and inform them that pet tortoises, particularly sick ones, should not be released into the newly established conservation areas, which may have resulted in the incidence of URTD outbreaks at the DTNA in the mid to late 1980's	

The education program would be a vital part of the overall conservation strategy. The current alternative provides only guidelines, which would indicate to the education subcontractor the types of programs that should be developed and existing programs that should be facilitated. Some programs, such as signing, fencing, and working with the Silver Lakes Association to minimize impacts of that community would be implemented immediately in order to ensure that those programs function as intended. The ultimate effectiveness of the program would be very difficult to gauge, although specific milestones would ensure that the program is being developed as envisioned.

Energy and Mineral Development: Benefits and residual impacts associated with the energy and mineral development are presented in Table 4-17.

Table 4-17
Benefits and Residual Impacts of Energy and Mineral Development

BENEFITS	RESIDUAL IMPACTS
<u>New Development</u> • Development of new mines and expansion of existing mines would be subject to the 1% AGD, compensation fees, tortoise clearance surveys, and implementation of BMPs.	<u>New and Existing Development</u> • Does not adequately address how existing and new contamination associated with mining activities would be remedied and avoided, respectively, in DWMAs • Fails to indicate how impacts associated with new haul roads would be minimized or avoided

BENEFITS	RESIDUAL IMPACTS
New Exploration • Identifies standards for new mineral exploration that would minimize impacts and require mitigation if temporary impacts are not remedied in a timely manner • Off-road travel, anticipated ground disturbance, and minimization measures would only be allowed under a BLM-approved Plan of Operations for all mines within DWMAs, which would result in higher scrutiny on a case-by-case basis to ensure that protective measures are identified and implemented as intended • Would provide incentive to ensure that exploratory activities result in only temporary impacts (e.g., access roads and drill sites reclaimed within 120 days and activities appropriately monitored, otherwise would require compensation and be counted against the 1% AGD)	New Exploration
Habitat Credit Component • Habitat credit component program would facilitate rehabilitation of existing mine sites in DWMAs, as given in Table 4-23.	Habitat Credit Component • See discussion in Table 4-23.

Although it has been suggested that mines may be the point source for heavy metals found in sick tortoises, the evidence is inconclusive. Therefore it is unknown how existing and new mines may indirectly affect tortoises. Direct impacts would be avoided and effectively minimized and mitigated by implementing the measures listed above in the left column; protection against indirect impacts remains unknown.

Feral Dog Management: The alternative identifies the need to draft a Feral Dog Management Plan to address this persisting threat, which is likely to increase as urban development and casual desert use increases. Management would be facilitated if it was implemented on both private and public lands, but the mechanism to do this (perhaps an MOU among appropriate entities) has not been identified (see Table 4-18)**.**

Table 4-18
Benefits and Residual Impacts of Feral Dog Management

BENEFITS	RESIDUAL IMPACTS
• The Implementation Team would work with BLM and private law enforcement agencies to produce a Feral Dog Management Plan	• Given the many programs requiring immediate attention, and the lack of good distributional data for feral dogs, this impact is likely to occur even if the management plan is completed in a timely manner

Feral dogs will continue to be a problem as the urban interface expands and ultimately contacts DWMA boundaries. Law enforcement agencies have the authority to remove feral dogs, as regulated, but are not specifically tasked to remove them at present. Given that law enforcement and recreation technicians would be focused on management in DWMAs, there would be opportunities to implement management as identified in the FDMP.

Fire Management: Alternative A would provide for a few new protective measures for fighting fires on public lands in DWMAs, based on the assumption that current management would suffice to continue to minimize impacts but that recent data show regions where modified activities would be prudent. Table 4-19 describes resulting benefits and residual impacts.

Table 4-19
Benefits and Residual Impacts of Fire Management

BENEFITS	RESIDUAL IMPACTS
• Existing programs would continue to be implemented on public lands with the intent of minimizing fire fighting impacts	• The current alternative would not function to minimize impacts on private lands, as it would pertain to fire suppression activities on public lands, only • Alternative fails to indicate how new information (i.e., locations of higher density areas) would be incorporated into BLM current management, or if there would be specific differences between fire fighting restrictions inside and outside DWMAs

Cattle Grazing: Alternative A would result in new regulations and management directions affecting cattle grazing on four BLM-managed allotments in DWMAs. Table 4-20 describes benefits and residual impacts resulting from new management areas and prescriptions.

Table 4-20
Benefits and Residual Impacts of Cattle Grazing on BLM Allotments

BENEFITS	RESIDUAL IMPACTS
• Would provide for voluntary relinquishment of cattle allotments to facilitate conservation of tortoises and other covered species, which is not currently provided for in CDCA Plan; would minimize the amount of additional regulatory work that results, thereby freeing staff to focus on implementing measures. • All applicable ACEC Management Prescriptions would apply to relinquished cattle allotments following the two-year period required to finalize relinquishment • Alternative uses that are not compatible with DWMA management (e.g., establishing a new vehicle open area) would expressly not be allowed on relinquished allotments; conservation as provided for and regulated by Class L guidelines and new management prescriptions would prevail	

BENEFITS	RESIDUAL IMPACTS
• Provides for removal of cattle from Exclusion Areas when there is less rainfall, less available annual plant forage for cattle and tortoises, and more likely competition between the two species	• Exclusion Areas are based on protecting higher density areas in DWMAs where cattle allotments overlap. Consequently, it would concentrate cattle in suitable habitats that currently support lower densities. For the conservation strategy to function, tortoises must be protected in higher density areas (accomplished) and facilitate repatriation in lower density areas (not accomplished, and possibly less likely due to concentrating cattle use)
• Identifies a 230 pound per acre dry-weight ephemeral forage threshold that would be consistently applied to all perennial cattle allotments in DWMAs • On allotments to be actively grazed in DWMAs, an Avery-like study would be completed within five years of plan adoption to determine the allotment-specific competitive threshold; in the interim, the 230 pound threshold would be used	• The 230 pound/acre threshold was developed on the basis of studies conducted in the East Mojave, in Ivanpah Valley. Such studies have not yet been undertaken in the West Mojave. Thus, its applicability to cattle allotments in the West Mojave, and its likely success in reducing competition for limited forage, will remain uncertain until the "Avery-like" study is completed.
• Identifies a seasonal restriction during the ephemeral plant growing season, between March 15 and June 15, which would benefit adult tortoises by resulting in less forage competition during years of poor rainfall	• Fails to avoid competition between juvenile tortoises and cattle; tortoises hatching in the previous fall rely on annual forage that may appear in February, and would therefore still be exposed to competition with cattle foraging outside the scheduled time for cattle exclusion • Fails to reduce the effect of cattle trampling on hatchling tortoises, which emerge in September to October, when cattle could be put back into the Exclusion Area following the June 15 deadline
• Would effectively minimize impacts of cattle grazing in the Ord-Rodman DWMA by installing fences at strategic points along the boundary to prevent grazing outside the allotment on adjacent DWMA lands	• Although new fences would minimize cattle trespass, they would also serve to concentrate cattle grazing on the Ord-Rodman Allotment where it overlaps with the DWMA
• Would eliminate ephemeral allocation on perennial allotments, which would prohibit increased cattle use in years of good ephemeral production	• Utilization levels are general and restricted to perennial plants, which provides no focused protection for "high potassium excretion potential" plants (from Dr. Oftedahl's work) and other annual forage that is important to tortoise feeding ecology
• Would prohibit additional allocations of perennial forage consumption for cattle by eliminating most temporary non-renewable grazing permits	• As with eliminating new ephemeral allocations, Alternative A would only serve to reduce impacts to perennial plants during favorable growing seasons without specifically protecting important ephemeral forage that would continue to be authorized for grazing
• Would eliminate ephemeral grazing authorization from all allotments in DWMAs, so that current "ephemeral-perennial" allotments would be designated for perennial-use, only, which, among other things, would result in the elimination of the Pilot Knob Allotment (an ephemeral-only allotment) designation	• Would still allow for grazing of ephemeral forage that is important to tortoises and cattle
• Would require that cattle are removed within two days, which is an improvement over current standards (no timeline is specified) that would result in less carrion availability for tortoise predators	• Cattle troughs are not affected and would continue to provide an otherwise unavailable water source to tortoise predators

BENEFITS	RESIDUAL IMPACTS
• Identifies new timeframes in which health assessments would be performed and results applied to identifying new management	• Health assessments were required to be completed by 2002, but have yet to be done in most allotments; proposal fails to indicate how these new timeframe requirements would result in new assessments

Grazing by cattle at Harper Lake occurs along the western edge of one of the most significant regional concentrations of tortoises in the entire planning area. The Ord Mountain Allotment is centered in such a way as to promote isolation of the three regional tortoise concentrations in the Ord-Rodman DWMA. This population is at risk to local extinction with no opportunity for natural repatriation. The three isolated aggregations are somewhat protected from region-wide spread of disease due to manmade (grazing) and natural (mountains) barriers.

Whether applying the East Mojave-derived 230-pound standard to grazing management in the West Mojave would result in reduced forage competition will remain an open question, at least until the West Mojave "Avery study" is completed. Exclusion Zones would seemingly minimize impacts, but they also concentrate cattle in DWMAs within the Ord Mountains, and immediately adjacent to DWMAs at Harper and Cronese Lakes. Removal of ephemeral allocations and most temporary non-renewable forage allocations would allow habitats to begin recovery when conditions are favorable, but would not minimize impacts that continue to result from use by the base heard. Trespass grazing outside the Ord Mountain Allotment would be substantially controlled, but would result in concentrated use elsewhere in the Ord-Rodman DWMA.

Sheep Grazing: Alternative A would result in new regulations and management directions affecting sheep grazing on all BLM-managed allotments in DWMAs. Table 4-21 addresses benefits and residual impacts resulting from new management areas and prescriptions.

Table 4-21
Benefits and Residual Impacts of Sheep Grazing on BLM Allotments

BENEFITS	RESIDUAL IMPACTS
• Would result in elimination of 14 mi^2 of sheep grazing from the Shadow Mountains Allotment	• Fails to identify new areas outside DWMAs where lost grazing potential would be reallocated, or how those reallocations may affect other covered species
• There are currently 705 mi^2 of BLM sheep allotments in DWMAs that have not been used since the USFWS biological opinion of 1991, that would no longer be designated for sheep use, as defined in the CDCA Plan amendment; ACEC Management Prescriptions would govern new BLM-authorized uses, which would no longer include sheep grazing	
• Replaces current utilization threshold of 200 pounds ephemeral dry weight per acre to 230 pounds, although this difference wouldn't be recognizable in the field	• Applies the 230 pound threshold (which is already questionable for cattle grazing) to sheep grazing, where no forage competition studies have identified a similar threshold

• Clarifies that no more than 1,600 sheep could occur in combined bands at and following lamb removal	• Alternative does not substantially change current management, which states 1,000 adult sheep and their lambs may be banded together.

Sheep grazing would be removed from 14 mi^2 in the Shadow Mountains Allotment, which is within the southern part of the proposed Fremont-Kramer DWMA; grazing was not prohibited in this area (as on 705 mi^2 within the DWMAs) by the 1991 biological opinion because it is in Category III habitat. Sheep grazing on private lands outside DWMAs would continue to occur, and would not be minimized by this or any other alternative.

Wildlife Guzzlers: Alternative A provides for a study to see if guzzlers are affecting tortoises in such a way as to require immediate attention. Guzzlers are most likely to affect the limited number of tortoises occurring in adjacent areas, and probably represent a small impact in the region. The proposal to inventory guzzlers, determine their direct impacts (i.e., drowning) and indirect impacts (i.e., support of local predators), and modify them accordingly would identify the problem, if any, and require a solution (see Table 4-22).

Table 4-22
Benefits and Residual Impacts of Guzzlers

BENEFITS	RESIDUAL IMPACTS
• Would provide for a study to sample quail guzzlers in DWMAs and remedy identified problems	• Until such a study is completed, guzzlers would continue to result in drowning and provide an otherwise unavailable water source to known predators

Guzzlers affect a limited number of animals, and may easily be retrofitted to prevent tortoise drowning. This alternative would assist the CDFG in better understanding and minimizing the impacts of guzzlers, which were put in the desert by the CDFG mostly in the 1960's. There are no data to indicate if local predator populations have increased in response to the water. Alternative A would effectively minimize impacts of an existing, marginal threat.

Habitat Credit Component: Alternative A would implement a program that would result in restoring degraded habitats, and serve as a secondary means for mitigating impacts. Rather than provide compensation fees to mitigate impacts, the proponent would restore degraded areas in DWMAs for the purpose of restoring suitable tortoise habitat (see Table 4-23).

Table 4-23
Benefits and Residual Impacts of Habitat Credit Component Program

BENEFITS	RESIDUAL IMPACTS
Success Criteria • The Implementation Team would identify existing impact areas to be reclaimed, which would be restricted to DWMAs or other HCAs where the authorized impact occurs • General guidelines and success criteria would be implemented to ensure that standards are being achieved that would lead to suitable habitats being recovered	Success Criteria • Successful restoration has rarely been achieved in arid landscapes, and may take decades before success or failure to be assessed
Fee Compensation Structure • Habitat restoration would still occur in the context of the compensation fee structure. Thus, one acre of habitat lost to authorized activities in a DWMA would require restoration of up to five acres under this program	Fee Compensation Structure • This program would result in restoring habitats in lieu of paying compensation fees. Therefore, depending on how often this program is used, it could result in fewer fees being collected to implement protective measures
Intended Function • This program is clearly identified as a secondary means of mitigating impacts, and would not function to replace the primary compensation structure • The Implementation Team, on an annual basis, would ensure that this program function as a secondary means of compensating impacts	Intended Function • Successfully restored habitats would be added back into the 1% AGD for the affected jurisdiction. Such a system could allow for replacement of "suitable" tortoise habitat with somewhat less valuable "restored" habitats, which could seriously undermine the function of the 1% AGD

If exercised as intended (i.e., secondary approach to mitigating impacts in lieu of fee compensation), this program would provide an excellent means to recover areas in DWMAs that are important to overall conservation goals. If used excessively, especially if not overseen carefully by the Implementing Team to ensure that success criteria were met, it would substantially detract from conservation, result in less income to implement measures, and replace occupied habitats with restored habitats that may not be occupied for decades. Tortoises rely on both annual forage and perennial plants (i.e., mostly shrubs, under which they burrow), which would take years, if ever, to become re-established. However, the program would allow for immediate loss of habitat that would have immediate, negative impacts, depending on the location.

Head Starting: Alternative A would result in implementing and conducting a pilot head starting program, which would be associated with the impacts given in Table 4-24.

Table 4-24
Benefits and Residual Impacts of Head Starting Program

BENEFITS	RESIDUAL IMPACTS
• The nursery hatchery established in the Fremont-Kramer DWMA would function in the short-term to minimize egg and hatchling predation; in the long-term the desired effect is to repopulate extirpation areas	
• Would be implemented in regions where current, depressed populations are so low that natural repopulation may not occur without this intervention	• Insufficient data exist to conclude that this program would function as intended; there is no evidence to suggest that head starting would result in increasing populations

• Insofar as possible, gravid (egg-bound) females would be taken from known impact areas (BLM open areas, ITAs, proposed development sites, etc.) and allowed to lay eggs within the hatchery, which would not remove females and potential hatchlings from protected areas (e.g., DWMAs, military bases, etc.) but would protect potential hatchlings in impact areas	

Data suggest that there are extensive areas in the northern and northwestern Fremont-Kramer DWMA where tortoises have been partially or completely extirpated. The remnant animals, if any, are widely dispersed and may not be able to find mates. It may take years to determine if the program is successful in re-establishing tortoises. Implementing a pilot study, rather than establishing multiple nurseries from the start, is a more cautious approach that would involve a minimal commitment of scarce financial resources to an untested concept. On the other hand, it carries a risk of missing an opportunity to benefit decimated populations immediately if the program proves to be highly successful.

Law Enforcement: Alternative A would result in guaranteed funding for new BLM law enforcement personnel, and would require focused monitoring and enforcement within designated DWMA boundaries. Benefits and residual impacts are given in Table 4-25.

Table 4-25
Benefits and Residual Impacts of BLM Law Enforcement

BENEFITS	RESIDUAL IMPACTS
Funding • Would provide for sufficient funding to employ new law enforcement and recreational technicians to enforce new regulations in DWMAs	
Focused Enforcement in DWMAs • New law enforcement staff would be obligated to patrol DWMAs so that constant enforcement is maintained and modified as needed to address persisting impacts • New BLM recreational technicians would supplement law enforcement, be less likely called away on other duties and emergencies, and ensure a constant educational/enforcement presence in DWMAs • Identifies guidelines that would facilitate focused enforcement in higher density tortoise areas, in higher density impact areas, adjacent to open areas that border DWMAs, and ensure that new data are used to adaptively manage law enforcement activities	Focused Enforcement in DWMAs • Though a good faith effort is implied, alternative fails to indicate how BLM would obligate its law enforcement staff to ensure this measure would be implemented. Failure to identify a mechanism could result in inconsistent implementation
Facilitated Coordination • Would result in coordination of BLM law enforcement with the Implementation Team, education subcontractor, Caltrans, local government to facilitate law enforcement actions in DWMAs on both private and public lands.	Facilitated Coordination

To be successful, a significant portion of the conservation strategy requires increased, focused

law enforcement in DWMAs. Enforcement of hunting and shooting regulations would be the only means to reduce the incidence of gunshot mortalities. Poaching, collecting for pets, and releasing captives are all activities that would continue unabated except for increased law enforcement. The program is critically dependent upon adequate funding and dedication of new personnel to natural resources patrol work in DWMAs; failure of either could result in significant impacts caused by unauthorized activities.

Motorized Vehicle Access: The new route network would be adopted by CDCA Plan amendment upon issuance of the BLM's Record of Decision. Effective implementation of the network would require signing open and limited use routes, physically obstructing roads identified for closure, and other actions. An aggressive, focused education program that targets all vehicle user groups would facilitate the success of the program. The assumptions inherent to this analysis are given in Table 4-26.

Table 4-26
Assumptions Regarding Motorized Vehicle Access Analysis

CATEGORY	ASSUMPTIONS
General	Unless otherwise noted, all discussion pertains to: • Alternative A • Desert tortoises (i.e., habitat, densities, mortality, conservation, etc. of tortoises) • Public lands in DWMAs
Desired Results	• The goal is to designate and implement a route network throughout DWMAs that would provide for public access, authorized uses, and the following desired results: • Fewer losses of tortoises to crushing, poaching, pet collection, intentional vandalism, and similar activities requiring vehicle access • Less degradation and loss of occupied habitat (first priority) and suitable habitat (second priority) • Larger blocks of unfragmented habitat, which would be achieved if vehicle use is prevented on designated closed routes, does not result in increased cross-country travel in adjacent areas, and promotes recovery of suitable habitats more quickly than would naturally occur • Route closure in higher density tortoise areas is likely to provide the most benefit in terms of avoiding mortalities and other losses • Route closure in lower density tortoise areas would alleviate losses of animals that are critically important to natural repatriation
Function and Importance of DWMAs	• All public lands in DWMAs are important for tortoise conservation and recovery • Lands that currently support relatively lower tortoise densities are no less important for tortoise recovery than lands supporting relatively higher densities • Conservation management in DWMAs must meet State and federal mitigation and minimization standards to offset authorized impacts in the tortoise ITA and elsewhere • DWMAs are the primary land base on which conservation goals, recovery efforts, and mitigation standards can be achieved

Impacts to Tortoises and Habitat	• Tortoises are more likely to be negatively impacted (i.e., crushed, collected, poached, etc.) in regions supporting higher densities than in areas of lower densities • Vehicle-based impacts are proportionate to the number of existing roads in an area. Both allowed uses (e.g., vehicle use that remains on existing roads) and prohibited uses (i.e., cross-country travel outside BLM Open Areas, dumping, vandalism, collection) are more likely to occur where roads are relatively more common • Tortoises and habitat are more likely to be impacted by vehicular activities in areas below about 20% slope than in steeper areas • If left unchecked, vehicle use in areas of above-average human disturbances would continue to result in loss of tortoises, degradation of habitat, and seriously undermine conservation and recovery efforts

Given the assumptions identified above, there are likely to be both benefits and residual impacts associated with the motorized vehicle access network, as summarized in Table 4-27.

Table 4-27
Benefits and Residual Impacts of BLM's Motorized Vehicle Access Network

BENEFITS	RESIDUAL IMPACTS
Overall Importance • Designating and implementing a motorized vehicle access network in DWMAs that is supported by land use laws and compatible with tortoise recovery is the single most important management action that could be implemented to minimize the widest variety of known human impacts.	Overall Importance
For Animals and Habitat • Implementing this alternative would reduce the following impacts, and would be proportionate to the linear miles of routes closed: • Tortoises would be less susceptible to: pet collection; animals, burrows, and eggs crushed; gunshot impacts; handling that results in bladder voiding; harassment or mortality by pet dogs; poaching for ceremonial purposes; releasing pet tortoises into wild populations, which may spread disease; translocation, where tortoises are moved outside their home range into other habitats; and vandalism. • Habitats would be less susceptible to soil compaction, displacement through wind and water erosion, petroleum contamination; spread of exotic weeds, which supports spread and intensity of fire; damage and complete removal of shrubs, which reduces protective cover and burrowing opportunities; dumping (which leads to more dumping), resulting in soil contamination, food sources for predators, focal areas for illegal target shooting; increased litter and garbage used as a food source by ravens; and increased noise levels (though effects are not well known).	For Animals and Habitat • There is no clear way to assess the current or future impacts specifically associated with roads, which would be necessary to adaptively manage public lands to provide a balance between human use and tortoise conservation.

BENEFITS	RESIDUAL IMPACTS
Route Reductions in Specified Regions • In *DWMAs*, the network would result in the closure of 1,855 of the 4,225 total linear miles of routes on public land, which is a 44% reduction of routes in DWMAs. This would have both immediate and long-term benefits • Within *higher density areas*, the network would result in the closure of 577 of the 1,146 total linear miles of routes in such areas, which is a 50% reduction of routes in this area. This would have immediate and long-term benefits where tortoises are most abundant. • Within *lower density areas*, the network would result in the closure of 1,278 of the 3,079 total linear miles of routes in such areas, which is a 42% reduction of routes in this area. This would have immediate benefits to habitat and long-term benefits to overall conservation • Within *above average vehicle disturbance areas*, a total of 435 of the 829 linear miles of routes would be closed, comprising about 53% of the existing routes in above average vehicle impact areas.	Route Reductions in Specified Regions • Use of the remaining 2,370 linear miles of open routes in *DWMAs*, representing 56% of existing routes in DWMAs, would continue to result in permitted and un-permitted impacts • The remaining 569 linear miles of open routes (50% in area) in *higher density areas* would continue to result in impacts. This total includes 384 miles of non-single track routes, although this is a reduction from the 439 miles open under the current (1985-87) designations. • The remaining 1,801 linear miles of open routes (58% in area) in *lower density areas* would continue to result in impacts to the few remaining animals, which are critical for re-establishing reduced or extirpated populations • The remaining 394 linear miles of open routes (47%) in *above average vehicle disturbance areas* would continue to affect tortoises

Unlike catastrophic die-offs, where the cause of death is unknown, and mammalian predation, which is widespread and may not be controllable, vehicle impacts may be controlled. Route reductions, signing and fencing programs, restriction on competitive events in DWMAs, education program, and increased law enforcement are pragmatic ways of minimizing vehicle impacts.

Given the assumptions, closure of any routes would be of some benefit to tortoise conservation. However, the effectiveness of the closures to achieve desired results is dependent on where the routes are located relative to higher and lower density tortoise areas, how soon the routes would be closed, and how well law enforcement would function to ensure traffic remains on approved routes of travel. Successful implementation must consider these and other variables, which cumulatively would provide the most substantial means of minimizing this known form of impact. If implemented as envisioned, the motorized vehicle access network would constitute a significant beneficial impact.

There are potential problems associated with route closures that could undermine the conservation value of the reduced route network. For example, the conservation value would be affected if closure results in increased illegal cross-country vehicle travel outside designated open areas, which in turn could lead to more crushed tortoises and habitat degradation. It is also possible (though not likely) that fewer routes may result in increased vehicle congestion on the remaining routes and concomitantly higher impacts in adjacent areas. These and many other impacts could be effectively avoided if BLM rangers begin to apply focused regulatory enforcement in conservation areas, which would require a major philosophical change in current enforcement practices.

Plant Harvest: Alternative A would prohibit plant harvest in DWMAs, which has the effects described by Table 4-28.

Table 4-28
Benefits and Residual Impacts of Plant Harvest

BENEFITS	RESIDUAL IMPACTS
• Would result in fewer impacts associated with plant harvest, which at this time is already minimal	

Currently, the BLM issues salvage permits that allow harvesting to occur on public lands, unless otherwise prohibited (i.e., operating a vehicle in a wilderness area to harvest plants). BLM staff indicated that very few permits are solicited. Upon issuance, permittees are informed of existing restrictions that would apply to plant harvesting. The effect of this measure would be to prohibit plant harvesting in DWMAs. This would reduce impacts associated with harvesting, which are already minimal, given how few permits are issued.

Raven Management: In 2002, the Desert Managers Group identified proactive raven management as a new, focused activity by the USFWS. Alternative A includes a set of action items identified by Dr. William Boarman that would serve as "raven management guidelines." Benefits and residual impacts of implementing Dr. Boarman's proposal are given in Table 4-29.

Table 4-29
Benefits and Residual Impacts of Raven Management

BENEFITS	RESIDUAL IMPACTS
<u>Coordination and Participation</u> • Implementation Team would ensure working groups assist USFWS in implementing measures where they would provide the most benefit and garner the widest public support • Participation by SCE and LADWP would ensure that protective measures are implemented for extensive reaches of existing utilities, raven salvage permits would be acquired, used, and results would be reported to the USFWS. This is particularly important in the southern portions of the Fremont-Kramer DWMA and other areas where subadults are relatively more concentrated	<u>Coordination and Participation</u>
<u>Action Items</u> • Would provide for county waste management to meet standards observed at San Bernardino County landfills • Would provide for removal of all existing illegal dump sites from DWMAs	<u>Action Items</u>

Landfills • No new landfills inside or within five miles of DWMAs would minimize the amount of forage and water available to common ravens where these sources would be most problematic • Assuming that hazardous and non-hazardous waste repositories constitute landfills, this provision would prohibit new repositories in Class M and unclassified public lands where guidelines would allow it • BLM's (unchanged) current management prohibits construction of new landfills on public lands, and has resulted in transferring public lands to private ownership where existing landfills occur, which is encouraged	Landfills • Proposal does nothing to minimize impacts associated with the Barstow Regional Landfill, which occurs within the Ord-Rodman DWMA.

The alternative provides a general strategy to guide raven management, rather than a list of explicit management prescriptions. Other programs (i.e., under utilities, transportation, grazing, etc.) would function to reduce sources of food and water for ravens. There is insufficient information to know if such measures (applied cumulatively or in part) would result in reduced populations or less predation on young tortoises. These are, for the most part, new actions identified to reduce a known threat. Increased raven predation would likely result from construction of new tract homes, development and expansion of new and existing mines, and other authorized activities. Populations would increase without the type of intervention provided for in the raven management guidelines.

Recreation: Though managed for tortoise conservation, DWMAs would still be available for a multitude of recreational activities. Non-consumptive recreational activities such as hiking, birdwatching, horseback riding, and photography would be expressly allowed. Hunting and target shooting would continue as currently regulated by law. Dual sport events would continue as regulated by existing USFWS biological opinions. New regulations would restrict the available area for camping, stopping, and parking to areas adjacent to designated open routes that are much narrower than current management allows. Benefits and residual impacts associated with these measures are summarized in Table 4-30.

Table 4-30
Benefits and Residual Impacts of Authorized Recreation Activities

BENEFITS	RESIDUAL IMPACTS

BENEFITS	RESIDUAL IMPACTS
Multiple Use Class Designations • Staging, pitting, and camping areas associated with dual sport events would be restricted in BLM Class L areas (current management under CDCA Plan Guidelines) • Class L lands, in general, are available for relatively fewer recreational activities and low to moderate user densities • The southern half of the Stoddard-to-Johnson Valley OHV corridor occurs in Class L lands, and therefore less subject to impacts given above	Multiple Use Class Designations • Staging, pitting, and camping areas associated with dual sport events would be allowed in BLM Class M and unclassified public lands, some of which corresponds to higher-density tortoise areas • Class M lands, in general, are available for a wider array of recreational activities and moderate to high user densities; there are even fewer restrictions in unclassified public lands • The northern half of the Stoddard-to-Johnson Valley OHV corridor occurs in Class M lands, and therefore more subject to impacts given above; the Edwards Bowl area, which is unclassified public land, is very degraded and would continue to be degraded
Competitive Event Corridors • Mandatory implementation of "yellow flag" conditions paid for by the proponent for events using the Stoddard to Johnson Valley and Johnson Valley to Parker corridors would eliminate the competitive "race" nature of the event (i.e., it would be more like a dual sport) and minimize BLM expenses	Competitive Event Corridors • New, frequent use of the Stoddard to Johnson Valley and Johnson Valley to Parker corridors for competitive events would result in impacts to the Ord-Rodman DWMA when increasing familiarity and popularity of the area result in more casual use • The two competitive event corridors represent a continuing, authorized impact. Significant impacts could be avoided but only if yellow-flag conditions are rigorously implemented.
Dual Sports • Maintaining dual sports as regulated would continue to increase participant awareness of tortoise conservation measures (i.e., non-competitive, restricted to existing route width, 35 mph speed limit, seasonal restrictions, etc.), has resulted in no known loss of tortoises, and would provide for compatible vehicular use, so long as currently regulated • BLM's revision of its educational materials provided to dual sports participants to indicate that both adult, and particularly hatchling, tortoises may be active at Thanksgiving, and that riders should watch for and avoid such animals, would make riders aware that tortoises could be out and should be avoided.	Dual Sports

BENEFITS	RESIDUAL IMPACTS
Other Conservation Measures • *Signing* programs would clearly identify areas intended for intense OHV recreational use (e.g., BLM open areas) versus those intended for tortoise conservation (e.g., DWMAs), which would allow for better user education and increased law enforcement • Installation of a *new fence* between the Johnson Valley Open Area and the Ord-Rodman DWMA would minimize recreation impacts that are not otherwise regulated by this alternative (i.e., no changes in management of open areas) • *Camping* restrictions to existing disturbed areas adjacent to designated open routes would minimize impacts associated with current management (where camp locations may occur in any habitats within 300 feet) and provide for increased law enforcement capabilities • *Stopping and parking* would be allowed within 50 feet of *designated* routes, which would result in less habitat degradation than at present where stopping and parking are allowed within 300 feet of *existing* routes • The *education program* would be especially tailored to minimize OHV recreational impacts in DWMAs, and result in increased awareness of both permitted recreational opportunities and restrictions benefiting tortoise conservation	Other Conservation Measures • Alternative fails to protect still higher density tortoise areas in the western portions of the Johnson Valley Open Area and the northern portions of the Stoddard Valley Open Area. In Stoddard Valley, higher density tortoise areas occur that are not apparently affected by older or newer die-offs. The alternative lacks an increased education program, seasonal restrictions on certain events, and requirement for re-routing competitive corridors away from higher density areas, which would have minimized impacts, especially in the northern portion of the Stoddard Valley Open Area.
Gunshot Impacts • Increased law enforcement would result in less violation of current statutes regulating hunting and target shooting practices	Gunshot Impacts • Current management would remain unchanged with regards to hunting and target shooting in DWMAs. However, gunshots continue to be one of the primary causes of identifiable tortoise mortality. Beyond current management, the alternative fails to provide any new means to deal with gunshot mortality. Although effective education and law enforcement would help, failure of law enforcement to address this impact would constitute a significant impact.

Transportation: In this section, impacts associated with construction and maintenance of federal and State highways are discussed. The California Department of Transportation has identified all federal and State highway projects that would be authorized and likely developed during the 30-year term of the plan. Mitigation and minimization measures include the payment of compensation fees, performance of tortoise clearance surveys, implementation of applicable BMPs, fencing of highways, and coordination of projects with counties and BLM. Benefits and residual impacts associated with these measures are compared in Table 4-31.

Table 4-31

Benefits and Residual Impacts of Transportation

BENEFITS	RESIDUAL IMPACTS
• Highway fencing would result in fewer tortoises being crushed, reduced impacts of passing motorists on adjacent habitats (i.e., dumping, exercising pets, etc.), reduced likelihood for collecting or poaching tortoises, fewer crushed animals available to common ravens. • The distribution of recent die-off areas south of Highway 58 suggests that this fencing may have the positive effect of curtailing the spread of disease. • Insofar as possible, highway fencing would be installed (particularly along Highway 395 adjacent to DWMAs) sooner than later, and before construction	• Fencing would result in habitat fragmentation. • If there is less carrion available for ravens, there is the potential that, rather than leave the area, ravens may switch to other available forage, including tortoises and other wildlife. • If fencing does not occur until road construction (e.g., 2013 to 2015 for Highway 395 widening between Adelanto and Red Mountain), tortoises would continue to be crushed in the interim. This could result in the loss of about two tortoises per linear mile, and may selectively impact subadults that are sufficiently large to be less vulnerable to raven predation
• Culverts would be installed, which lessens the impacts of habitat fragmentation	• Once culverts are installed, they would allow passage of disease-infected tortoises into adjacent populations that may be relatively disease-free, which is suggested by recent die-off areas south of Highway 58
• Previous Caltrans proposals would be modified under this alternative to occur as near as possible to existing federal and State highways, otherwise they would compensate for all habitat occurring between the existing and new alignments; this would result in less fragmented habitats within DWMAs	• Serious habitat fragmentation would occur in the Fremont-Kramer DWMA if Helendale Road (between Silver Lakes and Highway 58) were paved and used as a primary transportation route; alternative fails to require fencing of this road if paved • Alternative fails to regulate new road construction by county road departments, which could result in habitat fragmentation in unknown patterns

Establishing DWMAs and maintaining them in an unfragmented condition is essential to the success of the strategy. Highway fencing would result in intended benefits (e.g., reduced road kill, less raven food), but may also have residual impacts (e.g., habitat fragmentation, ravens redirected from carrion to wildlife in adjacent areas). Timing is also critical. If fences can be erected sooner than construction, the program would result in significant beneficial impacts. Recent die-offs south of Highway 58 suggest that culverts may allow disease to spread into uninfected populations. Culverts would necessarily be required to allow for flows of rainwater runoff, however it may be better if such culverts were constructed to allow for runoff but be blocked so that tortoises could not cross beneath the roadways.

Utilities: Alternative A would result in clarifying CDCA guidelines and providing new guidance for alternative use of designated corridors. Benefits and residual impacts are tabulated below in Table 4-32.

Table 4-32
Benefits and Residual Impacts of Utilities

BENEFITS	RESIDUAL IMPACTS
Utility Participation • Utilities would ensure that protective measures, particularly for ravens, would be implemented along transmission lines occurring within DWMAs • Issuance of USFWS salvage permits to utilities would facilitate removal of offending ravens, provide feedback to the Implementation Team where problem areas have been identified, and generally promote implementation of the raven management plan	
• Program would ensure that maintenance workers of signatory utilities are aware of tortoises and avoid them, and adhere to seasonal restrictions and alternatives identified.	• None, as neither take nor new loss of habitat would be authorized
• Alternative would require that all right-of-ways in DWMAs are to be revegetated	• Alternative fails to indicate success criteria, implementation schedules, remedial actions, and other standards that would ensure acceptable revegetation
• Alternative would clarify that new utility construction in BLM-designated corridors must minimize impacts, and alternative corridors used as recommended, which would be governed by the Implementation Team	• Alternative would allow for serious habitat fragmentation by linear developments, particularly wind power facilities, that otherwise fit within the context of the 1% AGD; wind power facilities are not restricted to utility corridors identified in the CDCA Plan

Most of these measures provide for clarification and implementation of protective measures currently available but not being pursued. Issuance of a salvage permit that would allow for removal of ravens where tortoise predation is documented would ostensibly result in fewer ravens in the region. However, displaced ravens could switch to Joshua trees or other natural and manmade substrates even if all nests are removed from transmission towers, so such measures are more likely to "contribute to" than "result in" raven control.

Weed Control: Alternative A provides for better communication between the Implementation Team and local weed abatement groups, as indicated below in Table 4-33.

Table 4-33
Benefits and Residual Impacts of Weed Control

BENEFITS	RESIDUAL IMPACTS
• Would provide for potential funding and coordination between the Implementation Team and local weed management agencies • Programs that result in less ground disturbance (i.e., fire fighting, grazing, reduced availability of routes, etc.) would substantially contribute to minimizing spread of exotic species	• Alternative fails to, nor is there any clear means how to, eradicate non-native species that have already become well established

Increased communication and cooperation between administrators of the plan and local

agencies is not the same as a program with explicit management prescriptions. Developing the latter is complicated at present by the lack of any clear means to control established exotic species, such as red brome (*Bromus madtradensis*), cheat grass (*B. tectorum*), and split-grass (*Schismus* sp.), or even incipient ones, like Moroccan mustard (*Brassica tournefortii*). A solution may require additional steps by the Implementation Team and weed abatement groups to identify specific mechanisms or to collaboratively develop specific plans.

Overall Efficacy of Alternative A: As described in text following each of the above tables, there are both strengths and weaknesses associated with this alternative. Strengths include (a) establishing a conservation land base in the form of DWMAs; (b) ACEC management in the DWMAs, particularly where new prescriptions avoid impacts associated with no change in multiple use classes; (c) retention of all public lands within DWMAs; (d) 1% Allowable Ground Disturbance; (e) more protective measures for filming on private lands; and (f) enhanced take avoidance during new construction. Importantly, Alternative A could function without the requirement to acquire all private lands, as is envisioned for Alternative C (Recovery Plan alternative). Elimination of sheep grazing from 14 mi^2 of the Shadow Mountain Allotment would effectively remove this impact from the conservation area. This would benefit tortoise conservation without significantly curtailing sheep grazing outside the DWMAs, on both private and public lands, and therefore not significantly affect that industry. Each of these and several other programs augment current management in a proactive manner, which would be a significant beneficial impact with regards to tortoise conservation and recovery.

Analysis of available data indicate that there are a total of 4,225 linear miles of existing routes (including single track routes) on public lands within the four DWMAs, and that 1,855 linear miles, comprising 44% of digitized routes, would be closed under Alternative A. (Note that this discussion applies to all alternatives except Alternative G, where route reductions associated with ACEC plans and the 1985 and 1987 route designations would be implemented.) Reductions would include 577 linear miles in higher density tortoise areas, representing a 50% reduction in this area. There would also be a 42% reduction in lower density areas within DWMAs, with the closure of 1,278 linear miles in such areas. Digitized routes in washes would also be reduced by 66%, leaving only 60 of the 177 linear miles digitized available for future use. Cumulatively, these closures, if implemented in a timely manner, would constitute a significant beneficial impact to tortoise conservation in the planning area.

There are also some weaknesses associated with Alternative A: (a) retention of current multiple use classes would affect conservation management, including some of the higher density tortoise areas found inside the DWMAs; (b) new agriculture would still be allowed inside DWMAs on all private lands and on Class M and unclassified public lands; and (c) alternative fails to minimize potentially significant impacts of cattle grazing. It would apply the "Exclusion Area" concept and ephemeral forage thresholds, neither of which is likely to minimize impacts to important habitats nor avoid competition over limited forage between cattle and tortoises, respectively. Importantly, Alternative A would not provide for effective disease management, which would be far more efficacious if applied (or modified) as described below in Alternative F.

4.2.2.3 Mohave Ground Squirrel

Alternative A proposes a conservation strategy that would provide for MGS conservation within a Mojave Ground Squirrel Conservation Area (MGS CA) and the two DWMAs (Fremont-Kramer and Superior-Cronese DWMAs) that would be established under Alternative A for the desert tortoise. Table 4-34 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under Alternative A for the tortoise.

Similar benefits and residual impacts given for the tortoise would affect the following programs where the two species ranges coincide: Compensation and Fee Structure; 1 % Allowable Ground Disturbance; Category I, II, & III and Critical Habitats for Tortoises; Dump Removal and Waste Management; Feral Dog Management Plan; Fire Management; Habitat Credit Component; Habitat Reclamation and Restoration; Land Acquisition; Law Enforcement; Livestock Grazing; Mining; Raven Management Plan; Signing and Fencing DWMAs; Motorized Vehicle Access; Stopping, Parking, and Camping; and Highway Fencing and Culverts.

Table 4-34
Mohave Ground Squirrel Impacts of Alternative A

BENEFITS	ADVDERSE IMPACTS
<u>Conservation Area</u> Size of Conservation and Incidental Take Areas • (HCA-2) The conservation area established for the MGS would be 2,693 mi^2, or 35% of the 7,691 mi^2 range. • (HCA-2) Those portions within the MGS range that are outside military bases and the MGS CA occupy (2,243 mi^2), or 29% of the range, which corresponds to the incidental take area. • (HCA-2) As such, the conservation area would be 450 mi^2 larger than the incidental take area. Although this would constitute a significant impact, the intended conservation strategy, if implemented as envisioned, would be sufficient to fully minimize and mitigate authorized take of the MGS and occupied habitats.	<u>Conservation Area</u> Size of Conservation and Incidental Take Areas • (HCA-2) MGS CA does not include 4,998 mi^2 (65%) within the range, including 2,243 mi^2 outside military installations (i.e., 2,755 mi^2 are on military installations and therefore cannot be conserved under the plan)
<u>Specified Conservation Areas Outside the MGS CA</u> Biological Transition Areas (BTAs) • BTAs adjacent to the MGS Conservation Area would provide for heightened review of proposed projects by San Bernardino, Kern, Los Angeles, and Inyo counties, which would have the same advantages identified in Alternative A for the tortoise.	<u>Specified Conservation Areas Outside the MGS CA</u> Biological Transition Areas (BTAs)

BENEFITS	ADVDERSE IMPACTS
Specified Conservation Areas Outside the MGS CA Los Angeles County Significant Ecological Area • The formal adoption of the Los Angeles County Significant Ecological Area, and participation by Los Angeles County, would provide for heightened review by the Significant Ecological Area Technical Advisory Committee (SEA TAC), which would require SEA TAC to consider future projects in the context of overall MGS conservation in the southern portion of its range, outside the MGS CA. Although this is desirable, if the prescription is not adopted in the final EIR/S, SEA TAC would continue to function in a similar protective manner.	Specified Conservation Areas Outside the MGS CA Los Angeles County Significant Ecological Area
Specified Conservation Areas Outside the MGS CA Sierra Foothills Habitat Connector • Establishing the Sierra Foothills Habitat Connector would require Kern and Inyo counties to ensure that development does not completely sever the corridor, which is important to ensure connectivity between MGS populations occurring within and adjacent (i.e., north and south of) that connector.	Specified Conservation Areas Outside the MGS CA Sierra Foothills Habitat Connector
Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas • MGS conservation would benefit from the establishment of the following new conservation areas for other species (acreage given in parenthesis are within the MGS range): Alkali Mariposa Lily (59 mi^2), Barstow Woolly Sunflower (57 mi^2), Bendire's Thrasher (27 mi^2), Big Rock Creek (7 mi^2), Lane Mountain Milkvetch (27 mi^2), and North Edwards (22 mi^2).	Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas
Management Structure within the MGS CA DWMA Management within the MGS CA • (HCA-2) The 1,736 mi^2 included in the Fremont-Kramer and Superior-Cronese DWMAs would be managed for the tortoise, 1,449 mi^2 (19% of the range) of which would benefit MGS conservation. • (MGS-2) Applying measures identified for the two DWMAs, Tortoise Survey Areas, and No Survey Areas to the MGS CA where they overlap, would have similar beneficial impacts as described above under Alternative A for the tortoise. Incidental Take Authorization • Take would be permitted under issuance of a programmatic Section 2081 permit by the CDFG. Major benefits would be realized, and serious flaws with current management would be rectified, that would provide for regional MGS conservation that is currently lacking.	Management Structure within the MGS CA DWMA Management within the MGS CA Incidental Take Authorization

BENEFITS	ADVDERSE IMPACTS
Management Structure within the MGS CA Best Management Practices • BMPs described for the tortoise would also benefit MGS where the ranges overlap, and effectively serve to minimize additional habitat loss from adjacent areas	Management Structure within the MGS CA Best Management Practices • Unlike the tortoise where animals may be rescued from harm's way, both the MGS and occupied habitats would be lost in places where the MGS occurs, and BMPs would fail to avoid this impact. • As with tortoise, BMPs would fail to alleviate indirect impacts to habitat and squirrels adjacent to authorized projects.
Management Structure within the MGS CA HMP Instead of ACEC Designation	Management Structure within the MGS CA HMP Instead of ACEC Designation • Designating the MGS HCA as a Habitat Management Area would provide for less protection and funding priority than if the conservation area were designated as an ACEC.
Management Structure within the MGS CA Multiple Use Class Designations • Those portions of public lands within the MGS CA that are immediately south of Owens Lake, would be reclassified from class M to class L, and constitute a marginal beneficial impact under CDCA Plan guidelines.	Management Structure within the MGS CA Multiple Use Class Designations • Impacts identified relative to guidelines for development in class M and unclassified public lands would also affect the MGS
Conservation Relative to Military Bases • (HCA-2) MGS conservation would remain unchanged on military bases, which at Edwards AFB and China Lake would benefit overall MGS conservation. • (MGS-6) Establishing a Military Coordination Group would ensure communication and cooperation among all management entities (i.e., BLM and county jurisdictions), and have the best potential for ensuring MGS conservation throughout the known range. Establishing annual coordination meetings between the Implementation Team and the MGS Technical Advisory Committee would have similar benefits.	Conservation Relative to Military Bases • (HCA-2) Those portions of the MGS range within Fort Irwin NTC (571 mi^2, or 7.5% of the range), and the Fort Irwin expansion area (110 mi^2, 1.5% of the range), would be affected by maneuvers below 20% slope; 681 mi^2 (9%) of the range would be affected by existing and future maneuvers at Fort Irwin; new use may result in the expansion of the round-tailed ground squirrel into the MGS range.
Miscellaneous Conservation Programs Commercial Filming and Plant Harvest • (MGS-1) Applying protective measures for commercial activities (i.e., commercial filming and plant harvest) identified for the tortoise to MGS conservation would have similar beneficial impacts described above under Alternative A for the tortoise.	Miscellaneous Conservation Programs Commercial Filming and Plant Harvest
Miscellaneous Conservation Programs Education	Miscellaneous Conservation Programs Education • The education program identified for the tortoise would fail to protect the MGS, which is a relatively unknown species that would require additional measures for conservation to be understood by affected publics

BENEFITS	ADVDERSE IMPACTS
Miscellaneous Conservation Programs Utilities Construction and Maintenance • (MGS-1) Applying protective measures for utility construction and maintenance identified for the tortoise to MGS conservation would have similar beneficial impacts described above under Alternative A for the tortoise.	Miscellaneous Conservation Programs Utilities Construction and Maintenance
Recreation Competitive Events • (HCA-40) Prohibition of vehicle speed events within the MGS Conservation Area would serve to minimize the amount of habitat degradation that is typically associated with this type of activity. This is likely to be more of a benefit to MGS habitat (important) than to actual squirrels, which are less likely to be crushed than tortoises, for example.	Recreation Competitive Events
Recreation Non-competitive Events (Dual Sports) • Allowing dual sports events in those portions of the MGS Conservation Area outside of the DWMA between September and February would have marginal benefits, as this activity is not likely to significantly affect the MGS or its conservation. • Allowing dual sport events year round outside DWMAs and the MGS Conservation Area would have similar, minimal benefits given in the preceding bullet.	Recreation Non-competitive Events (Dual Sports)
Recreation Hunting and Shooting • (MGS-1) Applying protective measures for hunting and shooting identified for the tortoise to MGS conservation would have minimal benefits to the MGS, as intentional shooting has not been identified as a problem for the species, nor are the cryptic and secretive MGS likely to be susceptible to this form of impact.	Recreation Hunting and Shooting
Surveys Presence-Absence Surveys • (MGS-3) Eliminating CDFG's requirements to trap for the MGS or assume presence and mitigate accordingly would not appreciably affect MGS conservation, as most of the projects occur in the southern portion of the range where the MGS may already be mostly extirpated. This would also be a major significant beneficial impact to the development community, in terms of reduced mitigation fees, without seriously compromising MGS conservation.	Surveys Presence-Absence Surveys

BENEFITS	ADVDERSE IMPACTS
Surveys Exploratory Surveys • (MGS-5) Conducting trapping studies in the northern portion of the Antelope Valley in Kern County, on the 23 sections of public land identified in Chapter 3, would ascertain if the species occurs. If it does, this would constitute a significant new finding that may enhance the overall MGS conservation strategy, as at present, the species is considered to be absent from areas west of Highway 14.	Surveys Presence-Absence Surveys
Transportation Road Maintenance	Transportation Road Maintenance • (AB-7) Highway maintenance seasonal restrictions, roadbed and berm requirements, and preclusion of the use of invasive weeds for landscaping would apply, which could result in impacts to the MGS, which is known to burrow in roadside berms. There are no available data to determine if this may constitute a significant impact, but it is likely to constitute an impact where MGS burrows would be destroyed.
Monitoring • (MGS-4) Establishing a monitoring strategy, designed and put in place by the Implementing Team, in coordination with the MGS Technical Advisory Committee, to ensure that the management program for this species is accomplishing its objectives would constitute a significant beneficial impact.	Monitoring

The MGS CA would encompass 2,693 mi^2, which is about 35% of the 7,691 mi^2 known range. About 2,241 mi^2 (29%) of the known range would be available for incidental take. (The remaining 2,757 mi^2 (36%) of the range occurs on Edwards AFB, China Lake NAWS, and Fort Irwin NTC, to which the West Mojave Plan's conservation strategy would not apply.) As such, the MGS CA would encompass about 55% of the MGS range occurring outside military installations. Similar factors would affect the inclusion of 87 MGS records (34% of 252 known records) within the MGS CA.

All alternatives, including Alternative A, would encompass the six plant communities in which 86% of the MGS records were reported (i.e., creosote bush, Mojave mixed woody scrub, saltbush scrub, shadscale scrub, blackbush scrub, and hopsage scrub). Analysis revealed that about 96% of the MGS CA would be comprised of these six plant communities. Diversity of plant communities is similar for all alternatives, and for Alternative A would include 27 different communities, including the 12 native plant communities known to be used by the MGS.

The MGS CA would include 1,442 mi^2 of Class L lands, or about 72% of the 2,016 mi^2 public lands within the MGS CA that would be managed by the BLM. There would also be 422 mi^2 of class M and 50 mi^2 of unclassified public lands within the MGS CA that would provide for relatively less protection than provided for under Class L guidelines. Excepting Alternative B, where there would be

380 mi^2 of wilderness areas, all alternatives would include 396 mi^2 of wilderness, where authorized land use activities would be compatible with MGS conservation (excepting where sheep grazing occurs; there are also illegal OHV vehicle uses).

Impacts associated with the hybridization zone, agriculture, urban development, above-average vehicle use, and transportation corridors are basically the same for all alternatives (minor differences are discussed under Alternative B). The single largest impact (affecting 333 mi^2 within six of the seven alternatives) is associated with above-average vehicle impacts.

4.2.2.4 Bats

The primary need for conservation of bats is protection of maternity and hibernation roosts, and secondarily, protection of transitory roosts used during migration. These roosts are most often mine shafts and adits possessing specific conditions of temperature, humidity, and light. They must be free from human disturbance. Roosts are less often found in rock crevices, abandoned buildings, under highway bridges, and in water tunnels.

Alternative A protects all known significant roosts by restricting human access with placement of gates than can be traversed by bats. This measure fulfills Objective 1. The bat roost under the Interstate 15 crossing of the Mojave River would have separate mitigation provided by CalTrans.

Access is maintained in the Pinto subregion to one location with an important roost. Other routes of travel allow vehicles to come within one-half mile of a known roost. Until the adit entrances are gated, these roosts are somewhat at risk of human disturbance. The routes provide access to existing mining claims at the sites or in the immediate vicinity. Several desert washes in the area used for foraging by California leaf-nosed bats are undisturbed by vehicles.

Because bats are so poorly known, the alternative provides for survey procedures at potential roost sites. If significant roosts were found, either on public or private lands, protection would be provided via negotiated agreements with the CDFG. This requirement is a substantial beneficial change from existing procedures, which tend to ignore the potential for bat use of an area. This fulfills Objective 3.

The level of take of the target bat species is minimized by the limitation to sites where less than 25 bats are present and, for the two most vulnerable species (Townsend's big-eared bat and California leaf-nosed bat) to sites where less than ten individuals are present. Foraging habitat for these two species would be protected and routes of travel would be eliminated from riparian areas and desert washes near significant roosts. Evaluation of potential vehicle impacts on the foraging habitat would be done on a case-by-case basis. These measures fulfill Objective 3. This level of take would not substantially affect the bat numbers or distribution in the West Mojave. The small allowed incidental take is fully mitigated by gating of roosts, which would improve the stability of the larger colonies.

The survey requirements and adaptive management program would insure that excessive take

would not deplete newly detected roosts, and may lead to additional conservation and management. Monitoring of significant roosts on a periodic basis would allow an evaluation of the effectiveness of the bat gates and other mitigation measures, such as provision of bat houses under bridges.

The biological goal of maintenance and enhancement of all bat populations in the planning area is met by the protection of roosts, protection of foraging habitat for the two rarest species and by the establishment of survey protocols. Continuing monitoring and adaptive management as specified provides a way to evaluate progress towards this goal over the term of the Plan.

The FESA standard of "…mitigate to the maximum extent practicable" is met because few other conservation measures are available for species so poorly known and because the survey procedures allow for identification and conservation of new roost sites. For Townsend's big-eared bat and California leaf-nosed bat, protection of adjacent foraging areas in riparian and wash habitat addresses this life-history requirement. The other species do not have known specific conservation needs beyond roost protection. Most forage over montane sites, agricultural areas, or protected riparian sites, such as Camp Cady (Brown-Berry, 1998, bat species accounts).

4.2.2.5 Other Mammals

4.2.2.5.1 Bighorn Sheep

Bighorn sheep in the West Mojave are found in only a few discrete mountain ranges away from the military bases. Bighorn herds that might be re-established in the Argus Mountains would benefit from the reduction of the burro populations over time, and from the programs to enhance springs and seeps. In the San Bernardino Mountains, establishment of an ACEC for the carbonate endemic plants would maintain lower elevation habitat for the existing herd. Route designation in the Ord, Newberry, and Rodman Mountains areas would reduce the occasional disturbance from vehicle traffic. Bighorn traveling between the Pinto Mountains in Joshua Tree National Park and the Bullion Mountains in the Twentynine Palms Marine Corps base would benefit from the establishment of a DWMA and from the Mojave fringe-toed lizard Conservation Area because the movement corridor and habitat linkage extending from the Pinto Mountains to the Sheephole Mountains just east of the Plan area would receive greater protection from disturbance of all kinds.

Enhancement of a dispersal corridor and habitat linkage between the San Bernardino Mountains and Little San Bernardino Mountains would benefit bighorn. Alternative A proposes to provide enhancement by adaptive management, since solutions to crossing of Highway 62 at the Morongo grade are not evident, and because travel between the mountain ranges is not well documented. Provisions requiring Dry Morongo Creek to be left unaltered by flood control would keep this wash west of Morongo Valley intact if the sheep utilize this as a travel route.

No direct take of bighorn is authorized or anticipated. Minimization and mitigation consists of conserving and reducing human disturbance in the mountainous habitat and protecting water sources.

Take could be defined as preventing sheep from dispersing among different mountain ranges, which are used seasonally. Known or suspected dispersal corridors would be protected from encroachment to the maximum extent practicable by the prohibition on new highway corridors or aqueducts which act as barriers, and by conservation of public lands within proven dispersal corridors. The Pinto-Sheephole-Bullion Mountains linkage is the only proven dispersal areas within the West Mojave.

Alternative A would maintain the proven Pinto-Sheephole-Bullion Mountains bighorn corridor and would allow for improvements to the dispersal corridor between the Little San Bernardino Mountains and San Bernardino Mountains via adaptive management and conservation of Dry Morongo Creek. It would increase the effectiveness of the Joshua Tree National Park – San Bernardino Mountains linkage by acquisition of private lands over time. This would meet the objective of establishment of two public land dispersal corridors.

The potential dispersal corridor between the San Bernardino Mountains and Fifteenmile Point in the Granite Mountains near Lucerne Valley would not be conserved unless additional data proving bighorn dispersal is gathered. Other potential corridors, such as the linkage across Highway 178 between the Argus Mountains and the Slate Range or open space connections between the Ord, Rodman and Newberry Mountains, would be protected by adaptive management if shown to be utilized by bighorn.

Alternative A would also prevent construction of additional barriers in known dispersal areas.

Sheep grazing allotments would be managed to prevent contact of domestic sheep with bighorn. A separation of nine miles between occupied bighorn habitat and areas used for sheep grazing on public lands would be maintained. This measure would effectively prevent transmission of disease from domestic sheep to bighorn.

Recovery and expansion of bighorn, both in numbers and range, is also dependent on protection of lambing sites and, in certain areas, re-introduction of sheep. Provisions to withdraw lambing areas from mineral entry, if necessary and to facilitate re-introduction where appropriate, address this recovery need.

4.2.2.5.2 Mojave River Vole

Minimal take is anticipated by Alternative A, and existing laws regulating disturbance in wetlands and riparian habitat serve to maintain the known vole habitat in the Mojave River. All authorized take of individuals and habitat is associated with projects impacting the habitat in the short term, including trail construction and removal of invasive species. Maintenance for flood control in sections of the Mojave River proceeds on a five-year cycle that allows regrowth of the cleared habitat.

The Mojave River vole would benefit from maintenance of groundwater levels in the Mojave River that support its riparian and wetland habitat. Protection of the Mojave River vole is habitat-

based, and depletion of groundwater is almost the only threat to this species. If the Plan adheres to the groundwater criteria for the Mojave River, it would mitigate and minimize take to the maximum extent practicable and meet the state fully mitigate standard.

The biological goal of providing long-term conservation of all remaining Mojave vole habitat would be met assuming that groundwater levels are sufficient. The Plan allows projects that alter the habitat in the short-term but allow recovery of vole numbers and habitat within a few years. The limited incidental take from flood control activities, exotic species removal and trail construction would be fully mitigated by the long-term conservation provided to the habitat from groundwater maintenance.

4.2.2.5.3 Yellow-eared Pocket Mouse

The status of the yellow-eared pocket mouse would remain relatively unchanged by provisions of Alternative A. Threats to this species are few, though its precise range and habitat requirements are poorly known. The monitoring program (M-93) would ultimately better define occupied habitat on public land, which would assist in determining the need for acquisition.

Acquisition of private lands within the Kelso Valley would benefit the species if lands can be consolidated into larger blocks of habitat with similar management. Because most of the known range is on public land, acquisition is only expected to benefit the species at key locations, where the public-private land boundary has incompatible uses or spillover effects.

Monitoring of grazing impacts, using regional rangeland health standards as a benchmark (M-94), would assist in maintaining habitat for this species. Prevention of overgrazing would maintain the food source and cover sites for the yellow-eared pocket mouse.

Alternative A achieves the goal of maintenance and enhancement of existing habitat through provisions related to grazing on public lands. As additional information is obtained on locations and definition of occupied habitat, management and/or acquisition can be directed towards potential future threats. Minimization and mitigation to the maximum extent practicable is achieved, given that little is known beyond specific locality data for the species.

The public and private sector share responsibility for conservation of the yellow-eared pocket mouse. BLM management of the Owens Peak Wilderness, Sand Canyon and Short Canyon ACECs and of grazing allotments within the range of the yellow-eared pocket mouse fully mitigates the proposed take of 100 acres. Additional conservation in the Kelso Creek Monkeyflower Conservation Area, primarily grazing management and potential changes to route designation, should benefit the yellow-eared pocket mouse. The 1% allowable ground disturbance and 5:1 compensation ratio applies to these areas as well. If acquisition becomes necessary, Kern County would assist with identification of suitable parcels.

4.2.2.6 Birds

4.2.2.6.1 Bendire's Thrasher

Three areas of public land management would benefit Bendire's thrasher. In the Coolgardie Mesa area, reducing routes of travel through the Joshua tree habitat would decrease disturbance to this vehicle-sensitive bird during the spring nesting season. Withdrawal of lands from mineral entry for the Lane Mountain milkvetch would benefit the Bendire's thrasher where the two species overlap because it removes the potential threat of ground disturbance, noise and habitat fragmentation. Little change would be evident in the Kelso Valley and Jawbone-Butterbredt ACEC, where existing management appears to support a small population. In north Lucerne Valley, retention of BLM lands and management as open space with defined routes of travel would benefit the species in the long term by preventing urban encroachment.

Bendire's thrasher is not a species for which incidental take authorization is requested. Public lands would be managed to conserve known occupied habitat until additional information is gained on population size and locations. The species may be included in the HCP at a later date, and the analysis below provides a current overview.

Long term loss of potential habitatis expected in the Yucca Valley and Apple Valley areas. Surveys in 2001 (BLM, 2001) concluded that Bendire's thrashers were now absent from these areas where they were present in 1985 and 1986. Future surveys are necessary to determine if the absence of birds in 2001 is a permanent or short-term phenomenon. The acreage conserved in JTNP, north Lucerne Valley, Coolgardie Mesa, and the Kelso Valley (132,497 acres) exceeds the acreage of predicted habitat loss (3,973 acres).

4.2.2.6.2 Brown-crested Flycatcher

This riparian neotropical migrant is now well-protected at Big Morongo Canyon ACEC, Mojave Narrows Regional Park, and potentially at Cushenbury Springs and Indian Wells Canyon. Maintenance of groundwater levels in the Mojave River is the primary provision of Alternative A that would offer additional conservation for the brown-crested flycatcher. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting by this species along the river corridor.

Because the depletion of groundwater in the Mojave River is the only identified threat to the brown-crested flycatcher, Alternative A would minimize and mitigate to the maximum extent practicable, as long as the criteria are met. Take of the existing occupied habitat would be negligible, limited to short term effects of flood control maintenance on young riparian vegetation, exotic species eradication projects, and small construction projects, including recreational trails. This take is fully mitigated by the beneficial effects of exotic species removal and achievement of the groundwater standards. The goal of conservation of all suitable riparian nesting habitat is met for the long term, though small projects including trail construction and exotic species removal may impact habitat in the short term.

4.2.2.6.3 Burrowing Owl

Until a baseline is established for habitat conserved, jurisdictions would employ existing procedures for burrowing owl protection. These measures are probably not completely effective in preventing take of owls in urbanizing areas, but do prevent take by requiring eviction of relocation where owls are detected on development sites. The distribution of educational brochures to project applicants within city limits (Rap-9) is expected to increase detection and therefore decrease incidental take. Performance of abbreviated surveys for owls where tortoise clearance surveys are required would also decrease incidental take.

Alternative A would improve the habitat for this raptor by reducing vehicle disturbance at nest locations in more remote desert habitats. Reductions in route density, compared to the 2001 inventory, in the Coyote, El Mirage, Fremont, Kramer, Newberry Rodman, Ord, Red Mountain and Superior subregions are significant. Elimination of travel on single-track trails and dirt roads in these areas will create larger blocks of disturbance-free habitat for the burrowing owl.

Achieving minimization and mitigation to the "maximum extent practicable" relies on the definition of "practicable". The local jurisdictions consider an owl survey of every parcel seeking a discretionary permit to be impracticable, and have indicated that an education program would achieve the same result. Considering the high interest in protection of this species by the public and by the wildlife agencies, it is likely that the education program would be effective within a relatively short time frame. Increased reporting of burrowing owl sightings and nest sites would provide the cities and urbanizing county areas with a database that can be used to inform development applicants of the potential for owls to be present on their property.

The burrowing owl conservation strategy does not address the potential threat of poisoning by pesticides or rodenticides because ongoing agricultural operations are not regulated by the Plan. Rodent control outside agricultural is minimal and normally employs mammal-specific compounds which do not secondarily poison burrowing owls. The threat to owls from agricultural operations is unknown, but believed to be minimal. It is likely that several pairs of resident burrowing owls exist compatibly near existing agricultural fields, which provide an enhanced food source. Others are known to be present within industrial sites without evident threats, as along the railroad yards near Barstow.

The limitation on incidental take and requirement for matching acquisition of conservation acreage with acreage of habitat lost (Rap-13) allows the conservation strategy for burrowing owl to meet the State fully mitigate standard. As research (Rap-12) and acquisition proceeds over time, conservation of burrowing owls would become increasingly assured.

4.2.2.6.4 Ferruginous Hawk

Alternative A requires installation of raptor-safe electrical distribution lines. This measure would protect the ferruginous hawk from electrocution hazards from new facilities. The extent of the potential hazard to ferruginous hawks and other large-wingspan birds is not known, but may be substantial, and it is believed to be the primary threat to the hawk in the western Mojave Desert. The monitoring of existing distribution lines and identification of "problem poles" in areas where these hawks winter could be a significant achievement. Retrofitting of "problem poles" with perch guards or insulating devices on the conductors would be a major benefit.

The conservation program would minimize and mitigate to the maximum extent practicable because it addresses the primary specific threat to the ferruginous hawk. Take of wintering habitat is not an issue, and take of individuals by electrocution is unknown. However, the program for raptor-safe electrical distribution lines is believed to fully mitigate the incidental take because it would, over time, remove the problem causing incidental take.

4.2.2.6.5 Golden Eagle

Most golden eagle nests are within designated wilderness, and nest disturbance is not a major factor. For those nests that are accessible, the provisions of Alternative A regarding mining and the designation of a route network that mostly avoids nest sites would be a beneficial aspect of the plan that minimizes impacts on the maximum extent practicable. The restrictions on blasting operations during mining address disturbance during the nesting period, and the line-of-sight and distance standards for route designation avoid human disturbance to nest sites during sensitive periods.

The requirement for raptor-safe electrical distribution lines would most certainly benefit the golden eagle, even though the extent of an electrocution problem is not well known. Identification of "problem poles" through monitoring, followed by retrofitting with perches, perch guards, or insulating devices is a method of habitat enhancement that directly addresses a n important cause of mortality.

The conservation program would minimize and mitigate to the maximum extent practicable because it addresses one of the three main threats to the golden eagle in the West Mojave. The magnitude of threats from shooting and ingestion of lead is unknown, but believed to be infrequent in the West Mojave area. Take of wintering habitat is not an issue, and take of individuals by electrocution is unknown. However, the program for raptor-safe electrical distribution lines is believed to fully mitigate the incidental take because it would, over time, remove the problem causing incidental take.

Establishment of a more current baseline number of golden eagle nests would allow direct comparison with the late 1970's database and an assessment of how eagles have been impacted by desert users since that time. It would provide precision to the goal of maintaining the baseline number of nesting territories and allow evaluation of how well the Plan is meeting this goal.

4.2.2.6.6 Gray Vireo

No mechanisms currently exist for avoiding fragmentation of the desert edge habitat for the gray vireo. Establishment of the Big Rock Creek Conservation Area (HCA-3) and expansion of the Los Angeles County Significant Ecological Area overlay zoning would tend to maintain open space in key habitats in Los Angeles County. In San Bernardino County, known occupied habitat is in an area of large lot zoning and mountainous terrain. Further subdivision and building in this area near the CDCA boundary is constrained by the terrain. Existing and future (B-8) County development review limits alteration of habitat in Oak Hills and Phelan where vireos have been reported.

Without measures to prevent fragmentation of habitat, the corridor of suitable habitat along the foothills of the San Gabriel and San Bernardino Mountains between Palmdale and Joshua Tree National Park would be irrevocably broken. Because the proposed Los Angeles County SEA covers nearly the entire remaining undisturbed habitat, the preferred alternative would mitigate and minimize to the maximum extent practicable. Retention of scattered BLM lands in the foothills of the San Gabriel Mountains (B-6) would contribute to conservation of habitat and be a beneficial change over the current "unclassified designation", which allows exchange or disposal to the private sector.

In the San Bernardino Mountain habitat at the desert edge from Cajon Pass to Joshua Tree National Park, much of the land is within designated Wilderness (Bighorn and San Gorgonio units). Establishment of the Carbonate Endemic Plants ACEC and providing protection at the Juniper Flats ACEC and the surrounding Grapevine Recreation Lands would provide additional conservation benefits for the gray vireo in this part of its range.

Monitoring of known nesting areas over time will establish the potential threat of cowbird parasitism on the gray vireo. If the threat is shown to be substantial, a cowbird-trapping program will be initiated as part of the adaptive management provisions of the plan.

The take of potential and possible occupied habitat by rural residential development in Phelan, Juniper Hills and Pinon Hills is fully mitigated by conservation of the only remaining large blocks of occupied habitat along the San Gabriel and San Bernardino Mountains foothills.

4.2.2.6.7 Inyo California Towhee

Incidental take would be allowed on the 2% of the habitat for this bird that is privately owned. These areas, in Homewood Canyon and Crow Canyon north of Trona, are near existing residences. Towhees are known to come to bird feeders at the residences and there are no apparent current threats to the privately owned habitat. The private land is not designated as critical habitat. Future land use changes to the private land sites where towhees are present would not reduce the numbers of birds below a self-sustaining level or appreciably reduce the acreage of available habitat.

Restoration of the designated springs by removal of invasive plants would benefit the Inyo California towhee. Continuation of the program to remove feral burros in the Argus Mountains (B-12) would have a substantial beneficial affect on this bird.

Designation of routes on public lands does not affect this species. The Ridgecrest Field Office has created barriers at accessible springs in the Argus Mountains (North Ruth Spring, Austin Spring, Benko Spring), so that the habitat for the Inyo California towhee is protected from vehicle intrusion. Open routes are not designated for access to Bainter Spring. These springs are designated as critical habitat by USFWS. No aspect of the Alternative A route designations will adversely modify the critical habitat.

Monitoring of Peach Spring would determine if burro exclosure fencing is necessary. Because the towhees nested successfully at this site in 1998 despite the apparent damage to the riparian habitat at the spring, a delay in fence installation is not expected to contribute to a decline in the local numbers of the Inyo California towhee.

In 1998, the census of towhees met the population goals of the Recovery Plan. If continued monitoring on BLM and Navy lands indicates that the population remains high enough over a five-year period, this species could be delisted. The conservation program could achieve the goals of the Recovery Plan over time and result in delisting. However, achieving this goal requires cooperation and commitment to conservation on military lands and removal of feral burros from remote areas, which is extremely difficult. It may be that higher numbers of towhees are only present in years of sufficient rainfall and that the standards of the Recovery Plan are not achievable on a sustainable basis.

4.2.2.6.8 LeConte's Thrasher

Establishment of large, contiguous habitat is the primary need of the LeConte's thrasher, a relatively common bird that is susceptible to habitat fragmentation. The proposed DWMAs, MSG conservation areas and NPS lands would provide sufficient space to maintain a viable unfragmented population over the range of this species within the West Mojave. Route designation would improve the habitat for this vehicle-sensitive bird by reducing motion and noise disturbance at nest locations in its desert wash and creosote bush scrub habitats. Reductions in route density, compared to the 2001 inventory, in the Coyote, El Mirage, Fremont, Kramer, Newberry Rodman, Ord, Red Mountain and Superior subregions are significant. Elimination of travel on single-track trails and dirt roads in these areas will create larger blocks of disturbance-free habitat for the LeConte's thrasher.

Incidental take would occur near urbanizing areas where much of the habitat is already fragmented. The acreage of suitable habitat in the DWMAs exceeds and fully mitigates the acreage of incidental take. The route designation in all parts of the planning area on BLM lands minimizes impacts to the maximum extent practicable by reducing disturbance to nesting birds, and the proposed acquisition within conservation areas provides mitigation sufficient to meet the federal standard.

4.2.2.6.9 Long-eared Owl

Alternative A would protect long-eared owl nesting habitat and a potential communal roost site

at Big Rock Creek. Remaining conservation measures are implemented as part of the monitoring and adaptive management programs. Some areas known to be important to the long-eared owl, such as Indian Joe Canyon in the Argus Mountains are already adequately protected. Continued reduction in the burro herds in the Argus Mountains would allow expansion of the suitable habitat in the Argus Mountains.

The standard for nest site avoidance (Rap 2) combined with conservation of Big Rock Creek and Indian Joe Canyon, will achieve the biological goal and will minimize and mitigate adverse impacts to the maximum extent practicable. Take of long-eared owl, limited to habitat and not individuals, would consist of minor construction, such as trail construction at Big Rock Creek, Indian Joe Canyon, Big Morongo Canyon, or Mojave Narrows Regional Park. This take is fully mitigated by the acquisition and management of the known nest and communal roosts.

4.2.2.6.10 Lucy's Warbler

Small numbers of Lucy's warbler are protected at Whitewater Canyon and the Big Morongo Canyon Reserve. However, the major populations are found along the Mojave River, especially at Camp Cady and near Helendale. Afton Canyon is a known location with good mesquite habitat, but no recent studies have reported this species.

Maintenance of groundwater levels in the Mojave River is the primary provision of the West Mojave Plan that would offer additional conservation for this species. For Lucy's warbler, the middle and lower reaches of the river are where water is needed to prevent the loss of mesquite thickets, which are currently in a stressed state. The maintenance of groundwater at Camp Cady is of high importance. Groundwater pumping from adjacent farmland has resulted in poor reproduction of mesquite as well as stressed and dying plants (Lines 1999). Purchase of farmland and discontinuing the agricultural operations so that more water becomes available to the river vegetation may be necessary to maintain the groundwater criteria at Well H3-2 in the Harvard/Eastern Baja subregion if the Mojave groundwater basin.

The second conservation measure of importance for Lucy's warbler is removal of tamarisk from the Mojave River. Tennant (2002) showed that this bird clearly prefers mesquite habitat to tamarisk stands at Camp Cady.

Restoration of habitat through removal of invasive tamarisk would be of great benefit at Camp Cady. It also would improve habitat in the middle reach of the Mojave River between Interstate 15 and Barstow. Without a tamarisk eradication program, habitat is likely to continue to be degraded, and numbers of this and other species of riparian birds are likely to decline.

No individuals or habitat of Lucy's warbler are authorized for direct incidental take. Habitat enhancement and restoration would stabilize or expand currently declining populations, meeting the CDFG fully mitigate standard and the USFWS permit criteria of "minimize and mitigate to the maximum

extent practicable". The conservation measures of groundwater maintenance and tamarisk eradication would achieve the goals of the HCP for Lucy's warbler.

The mesquite bosque at Twentynine Palms appears to provide rather extensive suitable habitat for Lucy's warbler. Surveys are needed to determine if development in this area would actually impact this species. The adaptive management program for Lucy's warbler would require an evaluation of the viability of the Twentynine Palms mesquite bosque habitat for Lucy's warbler if conservation cannot be achieved within the known occupied habitat on the Mojave River.

4.2.2.6.11 Prairie Falcon

Although many of the prairie falcon nest sites are within Wilderness, the remaining sites are often subject to human disturbance during the nesting season. Route designation in mountainous terrain would improve conservation for prairie falcon because heavily used routes in the line-of-sight of an active nest would be closed or re-routed. The standards for mining, including restrictions on blasting, would also allow continued use of nest sites near active mines.

Take of falcons by falconry has declined to nearly zero, and would not be considered "incidental", since it is permitted by the CDFG. No other take of individuals is authorized by the preferred alternative. Incidental take in the form of nest site disturbance is minimized by the mining standards and by route designation, including seasonal limitations on use, as at Robber' Roost. Foraging habitat is not limiting to prairie falcon populations overall in the West Mojave, so land development is not considered incidental take.

Establishment of the Argus Range and Middle Knob Key Raptor Areas would not provide additional conservation, but would place these sites on BLM's national database of locations important to birds of prey.

At least one falcon nest has been identified with an Open Area (WRI, 2002). Although this pair appears to have adapted to the vehicle disturbance, this site may not persist in the long term and would be considered as an incidental take area.

Implementation of Alternative A would achieve the biological goal of maintaining the baseline number of pairs within the West Mojave.

4.2.2.6.12 Southwestern Willow Flycatcher

This riparian neotropical migrant is very rare in the West Mojave Plan area, known recently as a resident from only Mojave Narrows Regional Park, and historically at Big Morongo Canyon ACEC. Maintenance of groundwater levels in the Mojave River is the primary provision of the West Mojave Plan that would offer additional conservation for the southwestern willow flycatcher. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting of this species

along the river corridor and provide areas for the population to expand and recover.

In the event that the groundwater standard is not met, incidental take permits would be revoked or suspended for this and other riparian-dependent species found in the Mojave River. The affect of lowered groundwater on the southwestern willow flycatcher would most likely involve a long-term decline and contraction of the local range to the Mojave Narrows, where permanent groundwater is present. The overall impact may not be too different from the existing conditions, since willow flycatchers are now known only from the vicinity of the Mojave Narrows. An existing biological opinion already covers take of habitat by flood control maintenance.

Protection of riparian habitat in other areas, but particularly the eastern Sierra canyons, is important to migratory willow flycatchers of all subspecies. Monitoring of the impacts of cattle grazing on the riparian habitat would be necessary to insure that degradation of the riparian habitat does not continue in some canyons.

Human activities can result in increased numbers of brown-headed cowbirds, which "take" willow flycatchers by nest parasitism. If monitoring shows adverse levels of parasitism, the adaptive management measure of cowbird trapping will assure that the conservation program continues to function effectively.

Take of habitat authorized by the Plan, which is limited to small projects such as trails and in within the riparian habitat such as invasive species removal and construction of trails, is fully mitigated by the conservation program of groundwater retention, migration habitat protection and monitoring and adaptive management.

4.2.2.6.13 Summer Tanager

This riparian neotropical migrant is now well-protected at Big Morongo Canyon ACEC, Mojave Narrows Regional Park, and potentially at Cushenbury Springs and Camp Cady. Maintenance of groundwater levels in the Mojave River is the primary provision of the West Mojave Plan that would offer additional conservation for the summer tanager. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting of this species along the river corridor. Establishment of a Conservation Area at Big Rock Creek would protect additional habitat.

Enhancement of the habitat at Camp Cady by tamarisk removal and at Afton Canyon by continuing revegetation efforts would also serve to conserve and potentially increase the scattered populations of this species. Because all riparian areas where the summer tanager is known to nest are conserved, managed, or enhanced, the impacts of potential take are minimized and mitigated to the maximum extent practicable.

No take of summer tanager is anticipated. But take would be allowed at a few privately owned locations, including the Yucca Valley golf course, though the current management is compatible with

habitat requirements of the summer tanager. In addition, flood control maintenance, trail construction and invasive species removal may result in short-term take of habitat. If the groundwater criteria for the Mojave River are not met and the local nesting range within the Victorville/Alto sub-basin contracts to the Mojave Narrows portion of the river, that "take" of habitat would be compensated by acquisition of the riparian habitat at Big Rock Creek and enhancement of habitat at Camp Cady by tamarisk removal. Potential acquisition of farmland near Camp Cady, through the adaptive management program, would also stabilize or increase the groundwater levels underlying the riparian habitat in the Baja sub-basin. These actions would fully mitigate the take resulting from loss of occupied habitat elsewhere in the Mojave River.

4.2.2.6.14 Vermilion Flycatcher

This riparian neotropical migrant is now well-protected at Big Morongo Canyon ACEC and Mojave Narrows Regional Park. Maintenance of groundwater levels in the Mojave River is the primary provision of the West Mojave Plan that would offer additional conservation for the vermilion flycatcher. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting of this species along the river corridor.

Take would be allowed at isolated sites, such as urban woodland sites in Ridgecrest. All large habitat blocks would be conserved, assuming that the groundwater criteria for the Mojave River are met. The incidental take is therefore minimized and mitigated to the maximum extent practicable. Take of habitat in the short term from flood control maintenance and small projects such as trail construction is fully mitigated by conservation of habitat with groundwater maintenance and by invasive species removal in the Mojave River.

Human activities can result in increased numbers of brown-headed cowbirds, which "take" willow flycatchers by nest parasitism. If monitoring shows adverse levels of parasitism, the adaptive management measure of cowbird trapping will assure that the conservation program continues to function effectively.

4.2.2.6.15 Western Snowy Plover

Site-specific protection measures at playas during the nesting season would be very beneficial to the Western snowy plover, which is extremely vulnerable to human disturbance. Alternative A would protect the nesting areas on a site-specific basis, which minimizes and mitigates to the maximum extent practicable. All current nest sites would be preserved, meeting the biological goal. Additional surveys would be undertaken as part of the monitoring program at Dale Lake, and if found, nest sites would be protected from human disturbance and salt mining operations. Though operations at Dale Lake, Searles Lake and other areas may remove nest sites during the non-nesting season (fall and winter), sufficient nesting habitat will remain when the birds return from migration and new nesting areas will be protected.

In high rainfall years where rising lake levels flood nesting habitat, no provisions are made to

manage surface flow. This disturbance is considered to be part of the normal variation in nesting success, and snowy plovers do not show site fidelity to specific areas, so are believed to be able to accommodate and relocate nest sites to more suitable areas at the lake edge in these instances. The same rationale applies to the temporary take of nest sites during the fall and winter. The impacts of this take of former nesting habitat is fully mitigated by protection of all snowy plover nests during the breeding season.

4.2.2.6.16 Western Yellow-Billed Cuckoo

No immediate benefit to the yellow-billed cuckoo would be apparent from protection and enhancement of riparian sites. This species is in a recovery mode, and maintaining the riparian vegetation in the Mojave River through groundwater recharge or management would provide habitat where the birds can expand their numbers and range. No incidental take is anticipated for this species, but flood control maintenance and small construction projects within the riparian zone may cause short-term alterations of habitat suitable for recovery. Suitable migration habitat would remain in the east Sierra canyons, and in the Kelso Valley.

Monitoring of the impacts of cattle grazing on the riparian habitat (M-86) would be necessary to insure that degradation of the riparian habitat does not continue in some canyons.

4.2.2.6.17 Yellow-Breasted Chat

This riparian neotropical migrant is now well-protected at Big Morongo Canyon ACEC, Mojave Narrows Regional Park, and potentially at several canyons along the eastern Sierra Nevada Mountains. Maintenance of groundwater levels in the Mojave River is the primary provision of Alternative A that would offer additional conservation for the yellow-breasted chat. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting of this species along the river corridor. Establishment of a Conservation Area at Big Rock Creek would protect additional habitat.

Enhancement of the habitat at Camp Cady by tamarisk removal and at Afton Canyon by continuing revegetation efforts would also serve to conserve and potentially increase the scattered populations of this species. Because all riparian areas where the yellow-breasted chat is known to nest are conserved, managed, or enhanced, the impacts of potential take are minimized and mitigated to the maximum extent practicable.

No substantial take of yellow-breasted chat habitat is anticipated. Flood control maintenance, trail construction and invasive species removal may alter riparian habitat in the short term If the groundwater criteria for the Mojave River are not met and the local nesting range within the Victorville/Alto sub-basin contracts to the Mojave Narrows portion of the river, that “take” of habitat would be compensated by acquisition of the riparian habitat at Big Rock Creek and enhancement of habitat at Camp Cady by tamarisk removal. Potential acquisition of farmland near Camp Cady, through

the adaptive management program, would also stabilize or increase the groundwater levels underlying the riparian habitat in the Baja sub-basin. These actions would fully mitigate the take resulting from loss of occupied habitat elsewhere in the Mojave River.

Human activities can result in increased numbers of brown-headed cowbirds, which "take" willow flycatchers by nest parasitism. If monitoring shows adverse levels of parasitism, the adaptive management measure of cowbird trapping will assure that the conservation program continues to function effectively.

4.2.2.6.18 Yellow Warbler

This riparian neotropical migrant is now well-protected at Big Morongo Canyon ACEC, Mojave Narrows Regional Park, and in several of the eastern Sierra canyons. Maintenance of groundwater levels in the Mojave River is the primary provision of Alternative A that would offer additional conservation for the yellow warbler. Maintenance of the riparian habitat between Victorville and Helendale would allow continued nesting of this species along the river corridor. Establishment of a Conservation Area at Big Rock Creek would protect additional habitat.

Because all riparian areas where the yellow warbler is known to nest are conserved, managed, or enhanced, the impacts of potential take are minimized and mitigated to the maximum extent practicable. Long-term assurances for groundwater to the Mojave River are not considered practicable by the signatory agencies to the HCP, since they do not regulate the actions of the water agencies and purveyors.

Minimal take of yellow warbler habitat is anticipated, consisting of small projects such as invasive species removal or trail construction. If the groundwater criteria for the Mojave River are not met and the local nesting range within the Victorville/Alto sub-basin contracts to the Mojave Narrows portion of the river, that "take" of habitat would be compensated by acquisition of the riparian habitat at Big Rock Creek and management of habitat through grazing restrictions in the east Sierra canyons. These actions would fully mitigate the take resulting from loss of occupied habitat in the Mojave River.

Human activities can result in increased numbers of brown-headed cowbirds, which "take" willow flycatchers by nest parasitism. If monitoring shows adverse levels of parasitism, the adaptive management measure of cowbird trapping will assure that the conservation program continues to function effectively.

4.2.2.7 Reptiles

4.2.2.7.1 Mojave Fringe-Toed Lizard

The measures for protection of the Mojave fringe-toed lizard conserve the sand transport ecosystem function at Big Rock Creek and Saddleback Butte State Park, which is a very beneficial aspect of the West Mojave Plan. These measures adequately address flood control, windbreak and vehicle use problems. Acquisition of additional occupied habitat adjacent to Saddleback Buttes State Park would enhance the viability of the fringe-toed lizard population at that location and prevent further incidental take.

Along the Mojave River, the preferred alternative protects public land occupied habitat, but fails to address conservation on private lands. This could cause fragmentation of continuous populations along the river east of Barstow. Many of the private lands are already converted to agriculture, and fragmentation is already a problem. Acquisition of the remaining undeveloped lands in private ownership with occupied habitat would be desirable, but is considered impracticable at this time because 1) it adds significant cost, and 2) it may not be essential as a habitat linkage. No routes of travel are designated for these lands. From Manix east, the Mojave Road is designated as open from Manix Wash through Afton Canyon and beyond. Additional open roads traverse blowsand habitat between Fourmile Waterhole and Ninemile Waterhole. These existing open roads do not appear to be impacting this species because of the very light use, but are not appropriate for conservation of the habitat for this vehicle-sensitive species. Alternative A would have a minor adverse affect on this population.

Acquisition of additional occupied habitat adjacent to Saddleback Buttes State Park would enhance the viability of the fringe-toed lizard population at that location and prevent further incidental take. Because the river wash is not developable, a connecting linkage is present and would remain between the public lands with occupied habitat.

In the Sheephole Valley, establishment of a conservation area on BLM lands outside the wilderness and National Park Service lands completes the conservation of lands constituting the habitat for this species. The 1985-1987 route designations allow travel on three primary routes across fringe-toed lizard habitat on BLM lands. The light travel on these routes, which cover about one-fourth of the occupied habitat, does not appear to be impacting this species. These routes provide access to mining claims and are part of a recreational loop. The Mojave fringe-toed lizard population in this area should remain secure for the indefinite future.

At Pisgah Crater, occupied blowsand habitat would be designated an ACEC and vehicle intrusion onto occupied habitat would be restricted compared to the present. Alternative A proposes closure of some, but not all, of the routes crossing suitable habitat, which would be a beneficial improvement. Additional closures of spur routes and redundant routes in sandy habitat west of Pisgah Crater are necessary to insure adequate protection of the lizards and their habitat from vehicle damage. Threats to the Mojave fringe-toed lizard would be largely removed by these conservation measures.

Alternative A would consolidate routes accessing the west slope of Alvord Mountain, closing several in the sandy washes. Access is maintained for the private land in this area, which is in a

checkerboard pattern. This reduction in routes is beneficial to the Mojave fringe-toed lizard because it closes routes traversing occupied and potential habitat.

The occurrences of Mojave fringe-toed lizard at Alvord Mountain, Manix, and Cronese Lakes would be further conserved through selective acquisition of occupied habitat.

Taken as a whole, the conservation program meets the biological goal of conserving eight of the fourteen known occupied sites for the Mojave fringe-toed lizard. The remaining six areas would be subject to incidental take. These are judged to be impracticable to conserve for the following reasons:

- El Mirage – No recent records, occupied habitat very small, and occupied habitat is within an Open Area for vehicle use.
- Twentynine Palms – Occupied habitat is within the city limits.
- East edge of Harper Lake – no recent records, habitat fragmented, suitable habitat very small.
- Edwards AFB – Not a part of the West Mojave Plan.
- Fort Irwin – Not a part of West Mojave Plan.
- Mojave Valley – Habitat is irrevocably fragmented by agriculture and rural development.

Considering the practicability of conservation at each site, Alternative A minimizes and mitigates the impact of incidental take to the maximum extent practicable. The measures addressing ecosystem protection, interagency cooperation acquisition, and set-aside of public lands for conservation combine to meet the State's fully mitigate standard.

Mojave fringe-toed lizard populations are conserved in all parts of the range within the West Mojave. This conserves genetic diversity within the species, which has a history of geographic isolation of populations and which is the subject of investigation to determine if the populations are genetically distinct. If so, they could qualify as "Evolutionarily Significant Units" or "Distinct Population Segments", terms used by the USFWS to define when a subset of a species can qualify for listing as threatened or endangered. Preliminary investigations (Morafka, 2000) have shown genetic differences among populations of the Mojave fringe-toed lizard. These potentially distinct taxa are conserved by the conservation measures in Alternative A.

4.2.2.7.2 Panamint Alligator Lizard

Direct threats to the Panamint alligator lizard are not imminent, but degradation of the riparian and adjacent upland habitat near springs in the Argus Range is evident. Continued removal of burros, along with enhancement of the springs by eradication of invasive plant species is expected to benefit this rare reptile. The goal of reducing the burro numbers in the Argus Mountains to zero is addressing this impact to the maximum extent practicable, though achieving that goal is difficult or impossible.

No take of Panamint alligator lizards is anticipated, and the conservation measures fully mitigate the take of habitat (by burros or invasive species removal) for this species.

4.2.2.7.3 San Diego Horned Lizard

The San Diego horned lizard has a rather wide range throughout southern California, and is protected by conservation lands within the San Diego MHCP, the adjoining North San Diego County HCP and parts of the North Orange County HCP. Proposed conservation in the Western Riverside County MSHCP would also fill in conservation gaps within the overall range of the species. The remaining edge of the range, in the Angeles and San Bernardino National Forests and the desert foothills would be protected in the revised Forest Plans and within the West Mojave Plan to the extent possible.

A significant portion of the foothill range of this lizard is already fragmented by rural development in Phelan and Oak Hills. Conservation at Big Rock Creek and in the Significant Ecological Areas near Mescal Creek would protect a representative portion of the desert foothill part of the range of the San Diego horned lizard. Connectivity to the east and west would be provided by habitat in the National Forests.

Conservation of the drainages on the north slope of the San Gabriel and San Bernardino Mountains by restricting flood control improvements applying building easements would retain patches of habitat for these lizards, but would not prevent further fragmentation of the intervening uplands. In addition, horned lizards occupying the watercourses may be subject to collection by children and predation by pets. This measure provides minimization, rather than conservation or mitigation of impacts. However, these areas would provide some extension of the conserved habitat in the National Forests.

Given the protection afforded by Wilderness, JTNP, the Carbonate Endemic Plants ACEC and the Big Rock Creek Conservation Area, and the management by route designation at Juniper Flats ACEC and in the Juniper route designation subregion, impacts on the San Diego horned lizard would be minimized and mitigated to the maximum extent practicable. Designation of a conservation area in San Bernardino County in the Oak Hills and Phelan where rural residences have already severely fragmented the habitat is not considered practicable. The conserved acreage is far greater than the incidental take area, meeting the fully mitigate standard.

4.2.2.7.4 Southwestern Pond Turtle

Existing protection of the southwestern pond turtles at Camp Cady Wildlife Area, Mojave Narrows Regional Park and Afton Canyon ACEC conserves the most important sites for this reptile in the West Mojave. However, maintenance of the groundwater in the Baja sub-basin of the Mojave River is essential to maintenance of the habitat at Camp Cady.

Enhancement of the habitat at Camp Cady by tamarisk removal and at Afton Canyon by continuing revegetation efforts would also serve to conserve and potentially increase the scattered populations of this species. Because all riparian areas of the Mojave River where the Southwestern

pond turtle is known to occur are conserved, managed, or enhanced, the impacts of potential take are minimized and mitigated to the maximum extent practicable. Long-term assurances for groundwater to the Mojave River are not considered practicable by the signatory agencies to the HCP, since the local jurisdictions do not regulate the actions of the water agencies and purveyors.

No take of Southwestern pond turtle is anticipated. If the groundwater criteria for the Mojave River are not met and the local range within the Victorville/Alto sub-basin contracts to the Mojave Narrows portion of the river, that "take" of habitat would be compensated by enhancement of habitat at Camp Cady by tamarisk removal. Potential acquisition of farmland near Camp Cady, through the adaptive management program, would also stabilize or increase the surface water and groundwater in the Baja sub-basin. These actions would fully mitigate the take resulting from loss of occupied habitat elsewhere in the Mojave River.

Expansion of the SEAs by Los Angeles County would provide additional protection of the remaining habitat for the southwestern pond turtle in the San Andreas Rift Zone west of Palmdale. It would not prevent illegal collection by children or herpetologists, and management of the SEAs in public ownership would be needed in the future.

4.2.2.8 Plants

4.2.2.8.1 Alkali Mariposa Lily

Establishment of a conservation area adjacent to Edwards AFB in the Rosamond Basin would be very beneficial to alkali mariposa lily at its core population.

Although the acreage of incidental take of alkali mariposa lily is large, few opportunities exist for conservation of undisturbed or unfragmented habitat. The permanent and interim conservation areas along the boundaries of EAFB are the only lands supporting occupied and suitable habitat for this plant that are not altered by agriculture, affected by changed hydrology, or fragmented by rural and urban development. Considering the limited opportunities for conservation and the high cost of land (practicability), the conservation program in the Antelope Valley fully mitigates the take of this species. The establishment of interim conservation areas would minimize incidental take until more is learned of the actual distribution within the potential habitat.

Acquisition of isolated springs and seeps also contributes to conservation of alkali mariposa lily in other parts of its range. The Paradise Springs property supports a large and dense population and the land necessary to protect the ecological process (faultline spring). The same is true on a smaller scale for Rabbit Springs.

Botanical surveys of isolated springs, seeps and meadows may result in the detection of additional sites for this species. These would be conserved by adaptive management, which may include acquisition, fencing, route designation, or avoidance measures.

4.2.2.8.2 Barstow Woolly Sunflower

Alternative A would provide conservation of large blocks of habitat in all parts of the range of this restricted West Mojave endemic plant. Establishment of a secondary reserve as the North Edwards Conservation Area extends the contiguous habitat of the largest population on military lands across jurisdictional boundaries.

Amending the Land Tenure Adjustment Project of the CDCA Plan would remove 1,143 acres of land that could be exchanged for acquisition of tortoise habitat in the Fremont-Kramer DWMA.

Alternative A's provision allowing the voluntary retirement of grazing allotments is expected to result in the elimination of the Pilot Knob allotment. This would protect sunflower populations near Cuddeback Lake. Route designation, especially for through motorcycle routes, would restrict potential damage from off-road travel.

The proposed core reserve would allow coordinated management of BLM and CDFG lands northeast of Kramer Junction for conservation. Route designation in this area would benefit the Barstow woolly sunflower over the existing situation because larger blocks of undisturbed habitat would be created.

Adjustments to the core reserve in the southwest corner would allow CalTrans to make improvements to the Highway 58 / 395 intersection with the certainty that the highway project would provide adequate and suitable mitigation for the Barstow woolly sunflower.

Acquisition of private lands within the DWMA and proposed Barstow woolly sunflower ACEC would provide unified conservation management of the lands by public agencies, preventing fragmentation of the habitat from incompatible land uses on private parcels.

New construction within the utility corridors would avoid known populations or provide increased mitigation over the present requirement, which serves to conserve existing sites or provide funds to acquire occupied habitat elsewhere

Mineral withdrawals in the Coolgardie Mesa area would provide additional protection for the Barstow woolly sunflower at that location by eliminating the potential for new ground disturbance from mining.

Alternative A addresses nearly all known occurrences of Barstow woolly sunflower and establishes conservation areas and management addressing the entire range of this narrow endemic. It creates unified large blocks of managed habitat, hence minimizes and mitigates to the maximum extent practicable. Incidental take would be allowed for the CalTrans project, within the City of Barstow and on private lands outside conservation areas. Very few occurrences are now known in the incidental take areas, so the expected level of take would be minimal. Compared to new conservation, the

incidental take is very small, so the State's fully mitigate standard is met.

4.2.2.8.3 Carbonate Endemic Plants

Creation of an ACEC for the four listed carbonate endemic plant species on the north slope of the San Bernardino Mountains, along with the management measures provided in the Carbonate Habitat Management Strategy, would fully conserve these species on both BLM and Forest Service properties. Lands east of Highway 18 would be protected from mining by the land use standard of no surface occupancy. Acquisition from landowners and claimholders with valid existing rights would be compensated. Adoption of standard mitigation measures and reclamation and revegetation standards by San Bernardino County would reduce the time and money spent on obtaining individual permits for FESA compliance.

Exchange of BLM lands along the Lucerne Valley railroad spur would benefit the local economy by allowing industrial development in this area, and would benefit the carbonate plant species by obtaining private lands for conservation purposes.

The carbonate endemic plant species are mostly within the Bighorn subregion for route designation. The routes within the habitat are limited to those designated in 1985 and 1987. The terrain generally prevents off-road travel. Use of these roads is infrequent. Some routes have been used for dual sport events in the past. Past vehicle use has not been detrimental to the listed plant species, and the designations in Alternative A would not adversely impact the plants or further modify the critical habitat. Additional monitoring and review of the routes designated as open in the habitat of the carbonate endemic plants may be warranted.

Occurrences of Parish's daisy in the Bighorn subregion near Vaughn Spring are avoided by the adoption of the 1985-1987 designations proposed in Alternative A. No routes traverse critical habitat in Section 22 (T 2N, R 3E).

Critical habitat for Cushenbury milkvetch is crossed by routes within Sections 7 and 8 (T 3N, R 2E), though the routes appear to avoid occupied habitat. No adverse modification to critical habitat is anticipated from these existing routes because travel off the road is prevented by the terrain. These routes access existing mining claims on the Blackhawk Slide.

The easternmost route through Section 1 (T 3N, R 2E) crosses critical habitat for Cushenbury milkvetch and Parish's daisy and is within the proposed Carbonate Endemic Plants Research Natural Area ACEC of the West Mojave Plan. The western route in this section forms the boundary of the ACEC. These routes access existing claims for limestone deposits. Elimination of the eastern route would be beneficial to the carbonate plants, but might prohibit access to a claim further south.

Within important habitat east of Highway 18 are two major areas where concentrations of the carbonate endemic plants are found. These areas also have overlapping critical habitat designations for

1, 2, 3, or all 4 species. These areas are North of Monarch Flats (Sections 11 and 12 of T 3N, R 1E) and West of Terrace Springs (known locally as the Partin Mine; Section 16 of T 3N, R 2E). Open routes extend across critical habitat to varying degrees in both areas. These routes access existing claims, are in poor condition, and are seldom used. In the North of Monarch Flats area, one open route enters public land from adjacent private land for less than 0.2 miles then deadends. In the West of Terrace Springs area, four route links cross into the National Forest. Because of their long prior existence as mining roads, these routes cause no new adverse modification of critical habitat. In a few cases near the Partin Mine, Parish's daisy is growing on the road surface or edge.

West of Highway 18 (which is outside the Bighorn subregion boundaries) one limited and one open route cross critical habitat for Parish's daisy in Section 10, T 3N, R 1E). All other routes designated open west of the highway are outside known occupied habitat for all four carbonate species and outside designated critical habitat.

A more site-specific route designation could be provided through the ACEC process in the West Mojave Plan. Access roads to claims within critical habitat may require the limited designation.

Existing fragmentation of the carbonate plants, a result of natural occurrence patterns and historical mining impacts, prevents conservation of a completely unified block of undisturbed habitat for these species. The CHMS does minimize and mitigate to the maximum extent practicable, recognizing the existing fragmentation and that restoration to native conditions is not possible in mined areas.

4.2.2.8.4 Charlotte's Phacelia

This plant faces few threats at present, being protected in the Owens Peak Wilderness, Red Rock Canyon State Park and in ACECs of the east Sierra Canyons. Alternative A would not alter the existing protections. Designation of routes in the El Paso Mountains via the community collaborative process would result in additional safeguards against habitat becoming disturbed by hillclimbs, parallel routes, and dead-end routes, assuming that these routes are closed.

Take of this plant is limited to private lands where new or isolated populations are found. Because potential takeis less than 10% of the land conserved, the incidental take is fully mitigated. The protection in Wilderness, ACECs, and the State Park, along with route designation, minimizes take to the maximum extent practicable and the imposition of mitigation fees mitigates to meet federal standards.

The grazing program may improve habitat for Charlotte's phacelia on the slopes of the eastern Sierra Nevada Mountains. Health assessments would be completed within two years of plan adoption for the following cattle allotments within the range of this species: Hansen Common, Lacey-Cactus-McCloud, Olancha Common, Rudnick Common, Tunawee Common, and Walker Pass Common. Grazing impacts now are believed to be minimal, based on past practices and occurrence data for Charlotte's phacelia. However, monitoring is necessary to determine current grazing effects, which may have increased in the recent drought years. To the extent that grazing is managed to move cattle within

the allotments and prevent concentrated grazing within occupied habitat, Charlotte's phacelia would benefit.

4.2.2.8.5 Crucifixion Thorn

Very few threats now exist to the isolated occurrences of crucifixion thorn. Creation of the Superior-Cronese DWMA and the Pisgah Crater ACEC would place eight of the nine sites within conservation areas. Reduction in the route network for both areas would benefit the species by establishing larger undisturbed habitat blocks, particularly in the crucifixion thorn "woodland" south of Fort Irwin.

Isolated occurrences in the Mojave Valley, such as the single plant found near Newberry Springs, would be subject to incidental take. Potential disturbance by existing mining and the Johnson Valley to Parker race in the Pisgah area may impact the habitat of crucifixion thorn, but stipulations attached to the event at the time would prevent damage to the rare plants. Protection of the larger occurrences exceeds the possible take of plants and habitat from all sources, however.

4.2.2.8.6 Desert Cymopterus

Alternative A would achieve a substantial improvement in conservation for desert cymopterus. Establishment of the North Edwards Conservation Area would limit incidental take and conserve the largest population, which extends north of Edwards AFB onto private lands. Remaining occurrences northeast of Kramer Junction would be protected within the Fremont-Kramer DWMA by the 1% limitation on allowable ground disturbance. Reduction of the route network in the Superior subregion will achieve better protection of the sandy habitat. Alternative A would achieve this by closing 251 miles of routes within the Superior subregion.

On public lands within the DWMA, botanical surveys would be required within the range of the cymopterus, and if found, avoidance would be mandated to the maximum extent practicable.

Grazing threats to desert cymopterus within the Pilot Knob allotment would be addressed by a prohibition on ephemeral use by cattle and by the allowance for retirement of the allotment if the permittee voluntarily relinquishes the lease. Grazing health assessments would be completed within two years for the Harper Lake allotment, which includes suitable habitat and two known locations for desert cymopterus.

In locations where desert tortoise and Mohave ground squirrel habitat overlap with occurrences or suitable habitat for desert cymopterus, acquisition of private lands would be a priority. Transfer of lands to public ownership would provide additional protection for desert cymopterus.

Incidental take would be limited to private land locations outside the DWMAs and to 1% of lands within the DWMAs and the North Edwards Conservation Area. Acreage of potential take is

estimated at XXX acres. Conservation would cover YYY acres and XXX of YYY known occurrences of desert cymopterus within the West Mojave

Incidental take is minimized and mitigated by the establishment of the two conservation areas with their avoidance standards and compensation ratios. The private land available for take is less than 10% of the habitat conserved, so that the conservation plan meets the fully mitigate standard. Although the 1% limitation on allowable ground disturbance within the conservation areas could differentially affect desert cymopterus, development threats are few in these areas, and acquisition of lands containing this species will be a high priority. The State requirement that incidental take be in "rough lockstep" with conservation will assure that desert cymopterus does not decline in the West Mojave ahead of the pace of conservation.

Additional survey information for this species is most likely to detect new occurrences on public lands where threats are few.

4.2.2.8.7 Flax-like Monardella

Although flax-like monardella faces no apparent threats now, it also is not provided with any established conservation measures. Designation of the Middle Knob ACEC and the requirement of avoidance within that area would minimize and mitigate potential incidental take to the maximum extent practicable. Incidental take is restricted to private lands where new occurrences may be located, but does not include existing known locations. Conservation of potential habitat within the Middle Knob ACEC greatly exceeds the potential for incidental take, thereby meeting the state's "fully mitigated" standard.

4.2.2.8.8 Kelso Creek Monkeyflower

All public lands in the Kelso Valley would be designated as a conservation area and managed to require avoidance by developments on public lands. Cattle grazing would be monitored and managed to avoid occupied habitat. Monitoring of potential habitat would identify any need for changes in the conservation area boundaries or for implementation of adaptive management measures, including fencing along private land boundaries in the future. Acquisition of lands with multispecies values in the Kelso Valley would improve habitat contiguity for this species in the long term.

Although incidental take permits are not sought for Kelso Creek monkeyflower, this species could be added to the list of covered species in the future. This is because as additional botanical surveys better define the distribution and acquisitions over time provide better protection, sufficient occupied habitat would be conserved and managed on public lands to insure the long-term survival of the species.

The conservation program as structured on public lands would not avoid adverse impacts to the species without measures on private lands, where half the occupied habitat is located. Development

threats are low in the Kelso Valley, allowing time for acquisitions and adaptive management measures to be implemented. Actions outside the West Mojave boundary will also affect the species either positively or negatively for a portion of the range. Based on current knowledge of this species, Alternative A would have a significant impact on the Kelso Creek monkeyflower, assuming buildout of the private land according to the Kern County General Plan. Based on the historical trend of new development of rural residences in the occupied habitat, adverse impacts are predicted to be considerably lower. Because the range of this plant is so limited and the known occupied habitat so small in extent, any substantial loss of occupied habitat would be considered a significant biological impact.

4.2.2.8.9 Kern Buckwheat

Conservation of Kern buckwheat requires proactive management of the few known locations on public land and avoidance of occurrences on private lands. The preferred alternative provides these conservation measures consisting of providing barriers to exclude vehicles and restoration of widened routes and a parking and turnaround area in one location. No routes are designated as open within the occupied habitat for Kern buckwheat, and Alternative A would beneficially impact this very rare plant species.

Incidental take would be restricted to very small areas where restoration of roads and construction of fencing or other barriers to vehicle use are necessary. Take is estimated at 0.01 acres, while conservation totals all remaining habitat.

4.2.2.8.10 Lane Mountain Milkvetch

The reserve-level management meets all state and federal incidental take permit standards because it addresses existing threats, provides proactive management, and consolidates mixed ownership into blocks of public lands managed for the species.

Route designation is very important to Lane Mountain milkvetch. Although direct impacts from vehicles to the plants and their habitat are not documented, indirect impacts from casual use mining and off-road travel could be significant. In addition, the potential operations planned on the Fort Irwin expansion may result in the loss of substantial numbers of plants and acres of habitat, so that the remaining habitat on public lands on Coolgardie Mesa and the west side of the Paradise Range must be managed on a reserve-level basis. Mitigation provided by the Army for potential impacts could include acquisition of occupied habitat on private lands and restoration and obliteration of roads on public lands.

The existing patchwork of private and public lands on the Coolgardie Mesa and the West Paradise Range where Lane Mountain milkvetch is found results in an incomplete network of access routes. If and when private land is acquired, additional routes may be designated as open or closed.

Alternative A closes many of the open routes on public lands in and near occupied habitat for this species, but is constrained by the necessity to provide access to the private lands. Access to mining claims is also provided. The West Mojave Plan proposes a mineral withdrawal for the occupied habitat. At the time claims are acquired or relinquished, certain routes within the habitat could be closed. The open designations consolidate access routes to popular destinations to the extent possible. However, Alternative A does not achieve the level of habitat conservation necessary to avoid indirect impacts to this species.

BLM and Army would implement the mitigation measures in order to achieve the conservation goals and objectives. Additional measures may be required by the terms and conditions imposed by USFWS in Biological Opinion on the Fort Irwin expansion operations plan and the West Mojave Plan.

4.2.2.8.11 Little San Bernardino Mountains Gilia

Known locations of Little San Bernardino Mountains gilia would receive far more protection than at present with the limitations placed on flood control improvements of desert washes in the Morongo and Yucca Valley areas. In addition, plants located downstream within the Coachella Valley would benefit from maintenance of upstream hydrology in Big Morongo and Dry Morongo Creeks.

The limitation on take would minimize impacts to this plant until more is known about its distribution and extent of occupied habitat. This conservative approach to habitat conversion would be beneficial to the species.

If no new occurrences of Little San Bernardino Mountains gilia are detected, the species is still somewhat at risk, even given the measures that protect its desert wash habitat. Although building would not be permitted within occupied habitat, casual use by off-highway vehicles could damage or destroy known sites and promote the spread of invasive weeds. Control of casual (illegal) use by motorcycles and all-terrain vehicles is beyond the capability of local law enforcement, and would depend on enforcement by adjoining homeowners. This enforcement appears to be good in Quail Wash outside JTNP, but non-existent north of Highway 62 in the small tributaries flowing into Coyote Lake.

From a planning perspective, incidental take of Little San Bernardino mountains gilia is minimized and mitigated to the maximum extent practicable. The limited allowable incidental take is fully mitigated by protections of the wash habitat. Monitoring and adaptive management would address protection needs in the future.

4.2.2.8.12 Mojave Monkeyflower

Creation of two regions as the Mojave Monkeyflower Conservation Area would greatly benefit this West Mojave endemic by preventing fragmentation and providing for focused public land management. Cessation of sheep grazing and restricting vehicle access within the conservation area would remove the primary threats to the species in the Brisbane Valley. Stipulations on utility

development and acquisition of private land inholdings would provide conservation in the Ord-Newberry Mountains area.

The Mojave monkeyflower is affected by route designation in the Ord subregion and in the Brisbane Valley, which is not within a subregion. In the Ord subregion, 390 miles of routes would be closed under Alternative A. Those roads within washes west of Camp Rock Road and near the transmission line that are closed would beneficially impact Mojave monkeyflower habitat by excluding vehicles from occupied habitat and by consolidating the potential habitat into large, disturbance-free blocks. Consolidation of the network near the Azucar Mine by closure of redundant roads is a positive impact to this species.

In the Brisbane Valley, travel on roads is not a threat, but off-road travel is extensive in places. The enforcement provisions of the Plan would beneficially impact the Mojave monkeyflower in this region.

Incidental take would be limited to portions of the southern Brisbane Valley in the Oro Grande mining area and to private lands outside the conservation areas. Limited take might occur with new projects (if any) constructed in the utility corridors. Take would be mitigated by payment of fees as compensation and avoidance to the maximum extent practicable. The maximum allowable take of 9,300 acres is fully mitigated by the conservation measures imposed on 47,000 acres of occupied and suitable habitat. Actual incidental take is likely to be far less, because the rocky terrain utilized by miners is not all occupied habitat and because the mining industry may establish a private mitigation bank within the mining area for this plant.

4.2.2.8.13 Mojave Tarplant

Existing occurrences of Mojave tarplant are protected within wilderness and BLM ACECs. Incidental take would apply only to newly detected occurrences, and would not exceed the acreage of occupied habitat conserved.

The primary needs of this species are proactive management and the ability to detect any threats or adverse changes to the occupied habitat. No existing threats have been identified at the Cross Mountain and Short Canyon sites. Monitoring would establish a baseline of conserved occupied habitat. These measures would benefit Mojave tarplant by providing the ability to track the number of plants and acres of habitat of this little-known species over time and to provide protective management if threats arise. The existing situation, while not posing harm to the species, does not positively address conservation.

The historical occurrence near Mojave Forks dam has probably been extirpated. If the species were re-discovered in this area in the future, as in Grass Valley or other parts of Las Flores Ranch, adaptive management would be required to conserve plants in this area.

The cap on incidental take would assure that any future impacts are fully mitigated, and the installation of a monitoring program to record the population status of known occurrences would greatly benefit this species. Minimization and mitigation measures in place now include cattle fencing and cattle guards on road access points, and additional grazing management may be required in the future on Cross Mountain or other areas where the species might be detected.

4.2.2.8.14 Parish's Alkali Grass

If acquisition of the single site (with two separate landowners) supporting this species is successful and management by a local non-profit organization put into place, complete conservation of Parish's alkali grass would be achieved within the western Mojave Desert. Monitoring includes botanical surveys of other alkali springs, seeps, and meadows that could result in the detection of new locations. Adaptive management would conserve these sites.

No incidental take for Parish's alkali grass is contemplated. The potential for minimal incidental take exists at newly detected locations. Limited development on the properties near Rabbit Springs would include avoidance of the occupied habitat. If additional sites for this species are located in the future, a small amount of incidental take is possible. In that case, mitigation would be imposed by the local jurisdiction on a site-specific basis.

4.2.2.8.15 Parish's Phacelia

Alternative A addresses potential threats from development within the utility corridor and straying of vehicles from the Manix Trail onto the playa by requiring avoidance, soil stockpiling, and restoration in addition to prohibiting vehicles on the playa. Acquisition of the private parcels adjoining and including part of the known population would bring the entire site into public ownership in the long term.

Incidental take is minimized and mitigated by these conservation and management measures, and is fully mitigated by the acquisition. Take would not exceed five acres, while the ultimate conservation would total approximately 900 acres.

4.2.2.8.16 Parish's Popcorn Flower

Successful acquisition of the single known location would eliminate potential incidental take of this restricted wetland endemic. Monitoring includes searches of other desert wetland springs, seeps and meadows where Parish's popcorn flower might be found, and adaptive management would formulate conservation plans for the lands, depending on their ownership.

4.2.2.8.17 Red Rock Poppy

Conservation provisions of Alternative A would represent no change from the existing situation for Red Rock poppy. Three quarters of the population is protected within Red Rock Canyon State Park, with the remainder occurring in the public lands of the El Paso Mountains. Threats are not apparent, but vehicle traffic off established roads could damage plants or their habitat.

The monitoring and adaptive management provisions address the needs of this species. No program now exists to track and record changes in the number of plants or acreage of occupied habitat. Alternative A would require a population census every five years, in coordination with the California Department of Parks and Recreation. In addition, the botanical surveys at additional alkali seeps, springs, and meadows may result in new occurrences of this species.

The community-based collaborative route designation process for the El Paso Mountains would consider the range and local distribution of the Red Rock poppy. The resulting network of open roads and trails may eliminate parallel routes, hill climbs, and straying off established paths, especially in Mesquite Canyon. This would improve conservation for the Red Rock poppy by creating larger areas of undisturbed habitat for it to grow.

4.2.2.8.18 Red Rock Tarplant

Conservation provisions of Alternative A would represent no change from the existing situation for Red Rock tarplant. However, the monitoring and adaptive management provisions address the needs of this species. No program now exists to track and record changes in the number of plants or acreage of occupied habitat. Alternative A would require a population census every five years, in coordination with the California Department of Parks and Recreation. In addition, the botanical surveys at additional alkali seeps, springs, and meadows may result in new occurrences of this species.

The community-based collaborative route designation process for the El Paso Mountains would consider the range and local distribution of the Red Rock tarplant, now limited to Red Rock Canyon and Last Chance Canyon within the State Park. The resulting network of open roads and trails may eliminate parallel routes, hill climbs, and straying off established paths that pass near seeps and springs. This could improve conservation for the Red Rock tarplant by creating larger undisturbed areas at potential habitat near alkali springs.

Adaptive management would address any newly detected occupied habitat. Take would be limited at newly found sites to a level not exceeding the area under conservation.

4.2.2.8.19 Reveal's Buckwheat

Conservation needs of Reveal's buckwheat are met by requiring avoidance of the single known

location in the Jawbone-Butterbredt ACEC. The plant is so poorly known within the West Mojave that establishing a monitoring and adaptive management program would allow for its future conservation needs to be addressed.

No incidental take is anticipated, but take may occur at newly detected sites on private land. These situations would be evaluated by the local jurisdiction on a case-by-case basis.

4.2.2.8.20 Salt Springs Checkerbloom

If acquisition of the single site supporting this species is successful and management by a local non-profit organization put into place, complete conservation of Salt Springs checkerbloom would be achieved within the West Mojave. Monitoring includes botanical surveys of other alkali springs, seeps, and meadows that could result in the detection of new locations. Adaptive management would conserve these sites.

No incidental take for Salt Springs checkerbloom is contemplated. Limited development at Rabbit Springs would include avoidance of the occupied habitat. If additional sites for this species are located in the future, a small amount of incidental take is possible. In that case, mitigation would be imposed by the local jurisdiction on a site-specific basis.

4.2.2.8.21 Shockley's Rock Cress

Alternative A would establish an ACEC for the carbonic endemic plants near Lucerne Valley and protect all known locations. Incidental take could occur in potential habitat to the west of Highway 18, where mining and related uses would be allowed. This take is minimized and mitigated to the maximum extent practicable with the adoption of the interagency Carbonate Habitat Management Strategy, and is fully mitigated by acquisition of private land within the ACEC.

4.2.2.8.22 Short-joint Beavertail Cactus

No specific protection for the short-joint beavertail cactus now exists within the West Mojave Plan boundaries, where all known occurrences are on private lands. However, the Los Angeles County Significant Ecological Areas zoning overlay appears to have limited rural development in the foothills near Mescal Creek and Big Rock Creek. Substantial additional occurrences are found to the south on Forest Service lands in Los Angeles and San Bernardino counties. Alternative A would be very beneficial to this species by providing for conservation through land acquisition in the Big Rock Creek Conservation Area. Continuation of the SEA designation in the Mescal Creek area at the Los Angeles-San Bernardino county line would enlarge the effective conservation area.

Incidental take would be allowed on private lands in the remainder of the range between Palmdale and Cajon Pass. Although large in area, occurrences outside the Mescal Creek and Big Rock Creek drainages are scattered between existing rural developments on vacant lots and have no long-

term feasibility for conservation. Provisions of Alternative A to require setbacks along all major drainages allows for some limited continuity of conserved plants in this part of the range with those protected by the Forest Service.

Because Alternative A conserves the only remaining large habitat blocks for short-joint beavertail cactus, it minimizes impacts on the maximum extent practicable. Mitigation is provided through compensations and acquisition of the only private lands that are available. The potential take, while large in acreage, is fully mitigated because the conservation area protects the highest quality habitat for this species.

4.2.2.8.23 Triple-ribbed Milkvetch

Conservation needs of triple-ribbed milkvetch are met by protection of Big Morongo and Dry Morongo Creeks from flood control improvements and the requirement of avoidance at all sites on public lands. This plant is so rare and so poorly known that it must be addressed through monitoring and adaptive management. The requirement for botanical surveys on all discretionary projects within five miles of known locations meeting the requirements for potential habitat would provide some protection against incidental take by errors of omission. If new occurrences were detected on public lands, they would be avoided. Projects on private lands would be evaluated on a case-by-case basis, with a first priority being site acquisition using the plan-wide mitigation fees or other funding that might be available.

The conservation strategy minimizes and mitigates to the maximum extent practicable and fully mitigates the potential take (estimated at zero). Given that this species is so rare and so poorly known, adaptive management will play an important role in ultimate conservation of the species. The adaptive management plan, while requiring avoidance of all occurrences, does not provide specifics on how conservation might be achieved in the future throughout the range.

4.2.2.8.24 White-margined Beardtongue

The only apparent threats to white-margined beardtongue are construction within the utility corridor north of Pisgah Crater and at the Pisgah electrical substation and off-road travel within the occupied habitat in washes draining the Cady Mountains. Alternative A addresses these threats by adopting the 1985-87 route designations for this area, with specific modifications to prohibit travel in Argos Wash. Establishment of an ACEC and route network at Pisgah Crater and acquisition of one private parcel with occupied habitat, if feasible, would provide additional conservation. Closure of spur routes crossing washes northeast of Pisgah Crater will beneficially impact the white-margined beardtongue.

Take would be allowed on private lands outside the Pisgah Crater ACEC, but is expected to be minimal. Allowable take, limited to the mining operations near Pisgah and utility construction where avoidance is infeasible, is fully mitigated by the management measures described above. The

conservation strategy minimizes take by requiring avoidance and mitigates to the maximum extent practicable by conserving the largest segments of occupied habitat in the washes draining the Cady Mountains.

4.2.3 Socio-Economics

4.2.3.1 HCP Program Components Affecting Urban Growth and Fiscal Revenue

Components of the Habitat Conservation Plan (HCP) program components likely to have the greatest potential affect on the socio-economic environment of the planning area include the following:

- Habitat Conservation Areas (HCA's) – selected land areas where urban development will not be permitted or will be restricted to a maximum 1.0 percent allowable ground disturbance (AGD) in order to conserve habitat environments deemed necessary for the survival of threatened or endangered species.
- Incidental Take Permitting Costs – intended to reduce risk and ambiguity inherent to the current Section 10a (FESA) and Section 2081 (CESA) permitting process. Amended regulations prescribe alternative requirements, each with associated cost (presence-absence surveys, clearance surveys, monitoring, and mitigation fees) that varies based on the geographic location of private property within the planning area.
- Specific Agency Proceedures – Agency prescriptions of conduct and resource utilization for grazing, mining, and recreation activities (Best Management Practices, etc.) intended to minimize undue impacts on threatened and endangered species.

Each of the above program components will influence distinct forms of socio-economic activity within the planning area including land development, cattle grazing, resource mining, recreation, and associated employment. Whether such influence can be reasonably expected to create a significant impediment for future socio-economic activity and growth throughout the area merits consideration.

Habitat Conservation Areas (HCA's) constitute areas where minimal disturbance to the existing habitat is sought. In all about 2.5 million acres of planning area land in the four-county area is proposed for HCA designation, including roughly 575,000 acres of private property planned for acquisition and permanent placement as habitat open space. The degree to which acquisition and placement of private property could reduce the growth capacity of the planning area is examined below, as is the affect on property tax revenue streams benefiting local city and county governments.

Incidental Take Permit Costs: The HCP program would establish a mitigation fee as compensation for habitat disturbance within the West Mojave. A key objective of the mitigation fee is to supplant ambiguity and cost uncertainties associated with the current myriad of endangered species regulations with a greater level of certainty defined by scheduled mitigation expense. The mitigation fee will apply to all new ground-disturbance activities (real estate development primarily) that fall within the jurisdiction of all City and County agencies participating in the HCP program. The HCP clearly directs the determination of the mitigation fee to be based on "the average value of an acre of private land to be

acquired for implementation of this plan."

The mitigation fee drives the HCP compensation framework. The mitigation fee component of the HCP program is characterized by a tiered compensation schedule that reflects the priority assigned to West Mojave sub-locations for habitat conservation. The tiered schedule simply reflects predetermined multiples of the baseline average land value describing target properties for habitat conservation. Within the HCA's and areas reflecting the highest conservation priority, the scheduled fee would be is five times the average land value; in West Mojave sub-locations largely impacted by existing development or that otherwise reflect a lower priority for habitat conservation, the mitigation fee is one-half the reference land value; and in all other areas of the West Mojave, the mitigation fee is equal to the average reference value of HCA target properties.

Other costs of obtaining a Section 10(a) and/or a Section 2081 permit would also vary depending on the location of a new project. Survey and permit drafting costs would differ among areas established for the tortoise, including DWMAs, the Survey Area and the No Survey area.

Table 4-35 compares the present costs for developing a 10-acre parcel to costs under Alternative A. The table assumes an average land value for HCA habitat conservation target properties of $770/acre (see Chapter 3). The table is presented as an example only; utilizing different land values would change the figures accordingly.

Table 4-35 shows that the costs under Alternative A would be significantly lower in the No Survey and Survey Areas, which are also the regions where most of the development has and would likely occur in the future. Available data indicate that 23,333 of 47,538 (49%) structures digitized from 1995 aerials are within the No Survey Area, with the remaining 24,205 (51%) occurring within the Survey Area. Since most of these structures occur outside proposed DWMAs, there is an equal likelihood that both Survey Areas and No Survey Areas outside DWMAs would be developed at similar rates. Charging relatively lower fees (1/2:1) for degraded habitat, lifting survey requirements in areas where dozens (or hundreds) of surveys have revealed no tortoises, and other measures associated with Alternative A would lessen conservation costs incurred by the average developer.

Table 4-35
Private Land Permitting Costs
For a Typical 10-acre Parcel

	CURRENT SITUATION	ALTERNATIVE A	
		DWMA	OUTSIDE HCA

			TORTOISE SURVEY AREA	TOROTISE NO SURVEY AREA
Presence-absence Survey	$125-1,250	$125-1,250	$0	$0
Permits Drafted • Cost • Timeframe	 $5,000-65,000 1 - 5 years (3 years average)	 $0 No Delay	 $0 No Delay	 $0 No Delay
Other Surveys • Clearance Survey • Weekly Monitoring	 $250-2,500 $350-500	 $250-2,500 $350-500	 $250-2,500 $350-500	 $0 $0
Compensation • Mitigation Fee • Endowment Funds	 $23,100 $295	 $38,500 $0	 $7,700 or $3,850 $0	 $7,700 or $3,850 $0
Total Costs	**$29,120 to $90,545**	**$39,225 to $43,750**	**$8,300 to $10,700 in 1:1 area, $4,450 to $6,850 in ½:1 area**	**$7,700 in 1:1 area, $3,850 in ½:1 area**

Note: Survey and No Survey Lands within the HCA but outside the DWMA would incur the costs set forth above, with the addition of the HCA mitigation fee.

The current Section 10 and Section 2081 permitting process does not necessarily apply to all private property in the planning area but remains a pervasive concern for private property developers. As such, current regulations effectively impose a high degree of uncertainty related to cost and time and add to the underlying risk of developing private property in many areas of the West Mojave. By comparison, the incidental-taking permit fees under Alternative A will apply equally throughout the planning area based on identified prescriptions of environmental remedy within designated areas. In short, all private property in the planning area is subject to the amended regulations but in return a reasonably predictable range of environmental remedy and associated cost is established. As example, the amended regulations can be expected to involve a cost of about $3,850 to satisfy prescribed environmental remedy before a 10-acre parcel located in a "No Survey Area" and "0.5-to-1.0 Mitigation Fee Zone" of the West Mojave can be developed. Private property development under the current regulatory situation might not involve the same level of cost but most likely involves costs ranging anywhere from $27,000 to $95,000 with significant time delays.

FESA Section 7 Consultations: Implementation regulations for FESA Section 7 mandate the time frames given for review (45 days) and writing (90 days) of biological opinions, so these time frames are not likely to change. However, the establishment best management practices, salvage protocols, handling guidelines, reporting requirements on standard data sheets, and predictable fees would identify standards, streamline the process, and facilitate consistent decision-making, so that the Section 7 process would be simplified and streamlined for the permitting agency (USFWS), Federal Lead Agency (BLM and others), and project proponent.

Assuming that the boundaries of tortoise critical habitat located on non-military lands are modified to conform to the DWMA boundaries, the adverse modification of critical habitat (the habitat analogue to a species' jeopardy opinion) would equate to the adverse modification of DWMA lands.

Alternative A would not directly affect Section 7 consultations between the USFWS and Department of Defense. However, considerable new information and field data would be available to the USFWS to determine take of animals and loss of habitat from the Western Mojave Recovery Unit, tortoise trends in the various DWMAs, general welfare of tortoises on permanent study plots, and other matters outside military installations. This information would allow the USFWS to better judge the cumulative effect of a given action proposed on, or by, one of the installations, and provide the regional context in which to determine the significance of the impact, and if it would result in jeopardy. If the plan is failing to recover tortoises on BLM lands, the USFWS would have that information when future Integrated Natural Resource Management Plans are being formulated for the installations (currently at five-year intervals), or there is a proposal for military training outside existing installations.

Specific Agency Procedures: Standards that are an integral part of Alternative A for private land development would also be applied to federal projects. Examples include: (a) implementation of BMPs in both DWMAs (more stringent BMPs) and Survey Areas (less stringent BMPs); (b) revegetation of pipelines in DWMAs; (c) 1% Allowable Ground Disturbance on BLM lands within the HCA; and d) Habitat Credit Component program.

Other procedures would be applied by the BLM to minimize inconsistencies among existing biological opinions and different federal lead agencies. Examples include: (a) means by which cattle and sheep would be grazed on each allotment; (b) regulation of dual sports events in DWMA versus non-DWMA lands; (c) competitive racing event guidelines applied inside and outside DWMAs; (d) oversight procedures for filming activities, especially in DWMAs; and (e) fire management in DWMAs versus outside DWMAs.

All foreseeable projects of the Federal Highway Administration, as administered by the California Department of Transportation, would be covered by the plan. CalTrans would have its own 1% AGD, streamlined permitting, and predictable mitigation. In return, CalTrans would locate major highway and freeway construction within previously identified corridors and coordinate mitigation with other Plan entities (such as highway fencing).

Activities by other federal agencies (such as the National Park Service and U.S. Army Corps of Engineers) would not be directly affected by the plan.

4.2.3.1.1 Urban Growth

Projected Regional Growth: The West Mojave represents a peripheral employment and housing market in the context of the Southern California economy, of which it is largely a part. As such,

future growth in the West Mojave is linked to the level of growth anticipated throughout the entire region. Several agency sources have been compiled and referenced to describe projected long-term growth within the seven-County region evaluated above in terms of historic trends. For the explanation of sources and methods used to forecast regional growth, refer to the Socio-Economic Analysis in Appendix N.

Projected Study Area Growth: Exhibit 14 in Appendix N summarizes two alternative projections of long-term population and housing growth in the West Mojave. The indicated projection period is 35 years and is intended to reflect enough time for HCP Project adoption (2 to 3 years) and the subsequent 30-year implementation period. The growth projections are further summarized in Table 4-36.

Table 4-36
Comparative Summary Of West Mojave Population Projections

PROJECTION ALTERNATIVE	2000	2035	CHG 00-35	AVG. YRLY. RATE
COG/DOF Driven Projections	795,000	1,706,500	911,500	2.21%
Trend Adjusted Projections	795,000	1,379,500	584,500	1.59%
Difference:	-	(327,000)	(327,000)	n.a.
Difference As % of COG/DOF:	0.0%	23.7%	55.9%	

Source: Alfred Gobar Associates.

By 2035, the population base of the West Mojave is projected to range from 1.38 to 1.71 million residents based on the two alternatives. The high-end projection reflects COG-based projections prepared for specific city locations from 2000 to 2020 and extended to 2035 using the same least-squares technique applied to regional projections. The lower projection reflects an adjustment to the COG-based projection based upon review of market capture trends since 1990 and General Plan Growth policies. Both sets of projections reflect alternative views about probable market capture within the West Mojave area relative to broader regional trends.

Projected Study Area Growth vs. Planned Capacity: Overall, long-term housing growth throughout the West Mojave is projected to consume between 35.0 and 43.0 percent of total housing development capacity inherent to local General Plan policy. Within the eleven West Mojave cities where the bulk of future housing development is projected to occur, between 42.0 and 50.0 percent of current housing capacity will be consumed by 2035. By comparison, only 26.0 to 33.0 percent of current housing capacity designated in the unincorporated sections of the West Mojave would be consumed over this period. Within each of the respective subareas, future housing growth is not expected to pressure current policy capacity, with the exception of the Inyo subarea. In effect, current housing development policy describing the West Mojave overall, the eleven West Mojave cities as a whole, and each West Mojave subarea is not expected to constrain the total supply of long-term housing growth.

Within selected areas of the West Mojave, local land use policy can be expected to limit the ability to satisfy market demand for additional housing in the distant future. Policy-induced constraints on market-driven demand reflect a localized development issue that will likely result in a shifting pattern of growth somewhat different than has characterized local areas during the past decade. Even under the most aggressive projection, significant potential for policy constraints on housing growth is limited to the City of Lancaster, City of Palmdale, City of Ridgecrest, and the Inyo subarea. Within the Antelope Valley cities, current residential land use policy is not expected to represent a potential constraint on projected growth until after 2020. The theoretical timing of policy restrictions on future housing in the City of Ridgecrest and Inyo subarea is less distant, on the order of 10 years based on the more aggressive growth projection.

Identified growth capacity far exceeds overall levels of growth projected to occur over the long term, with a few limited exceptions. The current supply of land designated for development, therefore, does not represent a compounding issue that must be considered when evaluating the material effect of the HCP program on area growth potential over the next 35 years.

Nonresidential Growth: Current General Plan land use policy designates approximately 241,000 acres for various forms of nonresidential development (office, retail, industrial, and institutional). It is estimated that roughly 160,000 acres of developed commercial land use is the supply base required to support a mature self-generating economy at buildout in the planning area. If the West Mojave were to constitute a self-generating economy with a base population of 1.38 million residents in 30 to 35 years (highly aggressive outlook), roughly 45,000 to 50,000 acres of nonresidential development will be required or about 20.0 percent of the current designated supply.

The likely impact of HCA designations on the potential for nonresidential development throughout the West Mojave is insignificant. The majority of land area designated for nonresidential development is situated within existing City Limit boundaries, while the preponderance of land area proposed for HCA designation is located in remote settings of the unincorporated planning area. The proportionate mix of nonresidential land use throughout the West Mojave is summarized in Table 4-37.

Table 4-37
Proportionate Mix of Non-residential Land Use

Locational Criteria	Office	Retail	Indust.	Inst.	All Nonresidential	
					Incl. Inst.	Excl. Inst.
WEMO Total (Ac.)	14,049	44,014	104,865	77,949	240,879	162,930
WEMO Mix	5.8%	18.3%	43.5%	32.4%	100.0%	67.7%
WEMO Cities	71%	73%	55%	15%	46%	61%

Uninc. Subareas	29%	27%	45%	85%	54%	31%

The current City-based supply of nonresidential land is two times the amount likely required to host all nonresidential development throughout the planning area over the next 30 to 35 years. In addition, about 88.0 percent of projected West Mojave population and housing growth is expected to occur within the eleven West Mojave cities. The reality is that very little, if any, nonresidential land is currently designated within proposed HCA boundaries. Due to location requirements for many nonresidential activities, it is also highly unlikely that any significant amount of land (exceeding the 1.0 percent AGD) within proposed HCA boundaries would be built, absent the HCA designation.

Residential Growth: Residential construction constitutes the land use most likely to result in the greatest amount of permanent ground disturbance (subdivision grading) among all forms of development commonly associated with economic growth in the West Mojave. As such, residential growth is also more likely than any other form of development to be affected by habitat conservation and protection policies of the HCP program.

Table 4-38 summarizes projected long-term housing development throughout the planning area. As shown, the most probable outlook of future growth indicates that roughly 258,000 additional housing units (mostly single-family detached units) will be constructed throughout the West Mojave over the next 35 years. Also shown is whether or not a given jurisdiction includes land (regardless of land use designation) within proposed HCA's, survey areas, or mitigation fee zones that dictate the scope of environmental remedy and associated cost needed to obtain construction permits.

The vast majority of private property within HCA boundaries (roughly 575,000 acres), however, is located in remote unincorporated reaches of the West Mojave where General Plan policies tend to designate land use for open space, agriculture, resource development, and other uses requiring little or no building area. The most probable impact of the HCA designation on long-term potential for housing development throughout the West Mojave is negligible for a number of reasons.

TABLE 4-38
PROJECTED HOUSING UNIT GROWTH

[INSERT TABLE 20 FROM APPENDIX N]

- General Plan densities in the HCA's rarely exceed a maximum of 0.2 dwelling per acre (minimum lot size – 5 acres but more often 20 to 40 acres).
- Market demand for housing in such remote locations is only a fraction of the demand for housing in West Mojave Cities.
- Remote desert locations often include a disproportionate share of housing used for seasonal and vacation purposes versus permanent residency.
- In abundance of suitable sites outside the proposed HCA's will continue to exist throughout the West Mojave to meet demand for housing in remote locations, particularly seasonal and vacation housing.

All areas of the West Mojave will be subject to CESA/FESA compliance and associated costs identified under Alternative A. The effect of such cost on long-term housing potential in the planning area depends on the effective cost burden or benefit created for housing developers and prospective homebuyers. The level of effect also depends on the corresponding density of housing that will be built in any given location. The vast majority of future housing throughout the West Mojave can be expected to reflect production housing built and marketed by private developers as a price-competitive alternative to more costly homes within Santa Clarita Valley, Western San Bernardino County, and Coachella Valley.

Table 4-39 identifies the effective cost per unit associated with CESA/FESA compliance under Alternative A. The cost is described relative to the development of a typical 10-acre parcel. The effective cost per unit varies on the basis of several factors including; the form of remedy corresponding with the site (DWMA, Survey Area, No Survey Area), the mitigation fee zone (5:1, 1:1, or 0.5:1), and the effective gross density used to characterize residential development for a given city or county subarea (2.09 units per acre, 4.41 units per acre, etc.). Also shown is the effective cost per unit described as a percentage of estimated average new home value in the area during 2002. Finally, the cost of complying with existing CESA/FESA permitting regulations is also identified in terms of cost per unit and share of unit value.

Current, CESA/FESA regulations represent an effective cost burden ranging from $1,702 to $9,146 per unit based on high-range estimates. For future residential built in the "Survey" and "No Survey" areas of the West Mojave, the cost associated with Alternative A represents a cost-savings benefit compared to existing regulations. As example, the environmental permitting process is estimated to involve a cost ranging from $184 to $512 per unit for residential subdivision development in Yucca Valley, compared to potential cost ranging from $1,293 to $4,332 per unit, excluding associated 1 to 3 year processing delays, under current CESA/FESA regulations. As the Yucca Valley example demonstrates, Alternative A establishes a certain and predictable cost structure for all residential development that is 60.0 to 96.0 percent less expensive than the likely but uncertain cost exposure that exists under current CESA/FESA permitting regulations.

Table 4-39
PRIVATE LAND PERMITTING COST – HIGH RANGE ESTIMATE

[INSERT TABLE 23 FROM APPENDIX N]

In light of recent trends throughout the State where significant capital improvement and habitat conservation fees are being imposed, the implicit cost burden of the amended permitting regulations for "Survey" and "No Survey" locations is not considered a significant impediment to the long-term growth of West Mojave housing resources. For roughly 75.0 to 80.0 percent of the future West Mojave housing stock, the amended permitting cost structure does not add more than 0.3 percent to the estimated average home value. By comparison, Riverside County has begun imposing a Transportation Uniform Mitigation Fee (TUMF) in all City and unincorporated areas that amounts to $6,650 per unit or 2.7 percent of the estimated average new home value in 2002 ($247,300 per unit on average). The impact fee, while deemed onerous by many private sector developers, is not expected to impede near-term development activity. Although, the high desert housing market is relatively price sensitive, the potential cost burden implicit to an undetermined number of parcels does not represent a material detriment to housing development based on the average home values and subdivision densities identified.

Within the communities of Barstow and 29 Palms (representing around 2.7 percent of future West Mojave housing growth), the use of clustered subdivision layout designs that yield effective gross densities characteristic of the West Mojave area overall (4.06 units per acre) are recommended to substantially reduce the potential cost burden identified for an undetermined number of parcels. Based on these density design modifications, the maximum potential cost burden could be reduced to less than 0.25 percent of the average home value in these local markets.

4.2.3.1.2 Fiscal Revenue

The most probable fiscal effect associated with the HCP program includes the potential loss of property tax revenue that would otherwise be received by West Mojave Cities and Counties. BLM would act as the lead agent for the property acquisition program, thereby removing private property from local tax roles. The level of impact is dependent on the amount, value, and geographic distribution of private property in the HCA that crosses city and county jurisdictions of the planning area. Property tax revenue losses associated with property acquisition would, however, be offset in part through payments in-lieu of tax (PILT) received from the Federal Government. Whether or not PILT effectively mitigates any identified significant impact can be reasonably assessed by reviewing precedent levels of payment to local agencies. A detailed discussion of the property tax structure for each City and County agency in the West Mojave and PILT is included in Appendix N.

The planning area encompasses about 9.36 million acres, of which the majority (6.46 million acres) includes government-owned lands already exempt from the payment of property taxes. The proposed HCA's of the West Mojave will encompass about 2.54 million acres, of which the majority (1.97 million acres) includes government-owned land (BLM, USFS, Military, County/City, etc.) already exempt from property taxes. Overall, there is approximately 2.9 million acres of private property throughout the West Mojave, of which approximately 575,000 acres, or roughly 20.0 percent, will be included within the proposed HCA's and considered for acquisition during the 30-year life of the

program. Many private properties in the HCA's are already developed and, as result, are exempt from the land acquisition component of the HCP program. These improved properties represent an undetermined reduction in the total amount and value of private property that would effectively be removed from the tax rolls of affected jurisdictions.

Under the HCP program only vacant private property will be targeted for acquisition. The potential loss to the tax roll, therefore, does not include existing improved properties with higher values. Actual potential revenue loss depends on the underlying tax rate defining the amount of property tax that a given City or Count agency would receive per $1.00 of property tax generated and the absolute amount of land within a given jurisdiction that falls within the HCA.. The HCA boundaries under Alternative A are almost exclusively limited to unincorporated locations and do not include any portion of the eleven West Mojave cities with the exception of the City of California City. BLM mapping details suggest that roughly 15.0 percent of the total land area within California City, or 19,000 acres of largely vacant land along the City's northern border, would be included in an HCA designation.

The maximum probable loss of tax roll value and property tax to each affected agency is summarized in Table 4-40. As shown, the maximum amount of property tax revenue that would be eliminated if all private land in the HCA's were removed from the tax rolls equates to approximately $940,000 per year. As a share of property tax revenue corresponding to 2002 assessed values, the indicated impact would not adversely impact the fiscal revenue structure of the affected agencies.

Table 4-40
MAXIMUM THEORETICAL LOSS OF TAX VALUE AND PROPERTY TAX

[INSERT TABLE 26 FROM APPENDIX N]

The indicated impact reflects a worst-case scenario since PILT reimbursement is not included as an offsetting form of revenue. Corresponding mitigation potential associated with future offsetting PILT is summarized by Table 4-41.

Table 4-41
Pilt Offset Of Maximum Potential Property Tax Revenue Loss

Affected Agency	Private Land in HCA's (Acres)	Est. Future PILT Payment Per Acre	Annual Offsetting PILT Revenue	Net Effective Property Tax Revenue Loss	Revenue Loss As Share of 2002 Revenue
California City	19,000	$0.91	$17,290	$1,938	0.23%
San Bernardino County	401,000	0.16	64,160	159,381	0.82%
Los Angeles County	77,800	0.76	59,128	536,757	0.35%
Kern County	76,700	0.91	69,797	31,658	0.06%
WEMO Overall	574,500	$0.37	$210,375	$729,734	0.32%

Source: County Assessor Records; Bureau of Land Management; Alfred Gobar Associates.

Future PILT revenue can be expected to reduce potential property tax revenue loss by approximately $210,000 per year or 22.0 percent. PILT provides an established, while not guaranteed, source of Federal revenue that further minimizes the fiscal impact of the proposed HCP program.

4.2.3.2 Employment & Income

The HCP program is expected to influence a wide range of economic activity throughout the planning area, most notably urban development, grazing activities, resource development, and recreation. To the extent the effects of the HCP program have been identified, corresponding implications for area employment and income also merit consideration. The California EDD estimates current 2002 local employment (jobs) throughout the planning area at approximately 232,500 jobs. The maximum theoretical effect on current employment associated with selected activities affected by the HCP program is discussed below as well as the probable direct effect of identified environmental impacts.

Urban Development: Building construction throughout the West Mojave most directly affects construction trades, engineering services, selected elements of the transportation and utilities sector, limited retail trades, and local government services related to site construction. On a combined basis, these selected job sectors represent about 9.3 percent of the current employment base throughout the West Mojave or roughly 21,600 jobs. The estimated composition of employment sectors influenced by urban development is summarized by Table 4-42.

Table 4-42
West Mojave Employment Influenced By Urban Development

Employment Sector	Share of WEMO Employment	Share of Sector Employment
Construction	3.87%	100%
Transp./Utilities	2.01%	42%
Retail Trades	1.34%	6%
Services	1.24%	4%
Government	0.85%	5%
Total	9.31%	

Employment within each of these sectors is largely driven by the overall level of urbanization throughout the West Mojave with the exception of construction, which responds most directly to real estate development pressure. As result, the maximum possible direct impact of the HCP program on urban development employment is substantially less than indicated, most likely not exceeding 5.0 percent of the West Mojave employment base. This level of theoretical effect describes direct employment losses that would result if future construction of all urban infrastructure, commercial buildings, and homes were to cease entirely, a highly unlikely scenario.

The HCP program is expected to have a negligible impact on the rate and location future urban development throughout the planning area, particularly for nonresidential development such as retail, office, industrial, and institutional. The projected level of housing development throughout the West Mojave is expected to generate approximately 9,175 housing construction jobs providing about $33,620 in annual income per worker. Potential limitations on housing growth inherent to the HCA designations and environmental permitting fees of the HCP program are considered negligible because the areas with highest probable impact are in remote locations where the majority of housing will consist of individual residences built on existing lots.

Grazing Activity: Most grazing production (cattle, sheep, etc.) is exported for additional grazing or processing outside the West Mojave region. Consequently, the area employment base most directly affected by grazing is limited to the agricultural sector, accounting for less than 0.9 percent of planning area employment, or roughly 2,000 jobs. Grazing activity has a long history throughout the planning area but represents a declining component of economic activity, both in absolute and relative terms. The bulk of agricultural employment includes agricultural service jobs (roughly 1,400), as distinct from stock production (less than 250 jobs) most directly associated with grazing activities. The bulk of agricultural service jobs are commonly geared to the support of crop production. Theoretically, the maximum direct impact associated with the HCP program is defined by the proportionate share of agricultural sector employment directed to stock production. This maximum theoretical impact exceeds the probable worst-case effect associated with the HCP program because BLM grazing leases will be recognized until such time as voluntarily relinquished by area ranchers.

Resource Development: Due to the richness and diversity of mineral deposits throughout the

planning area, resource development includes a wide range of related mining and extraction activities. Mining and natural resource extraction describes the area employment base most likely to be affected under Alternative A. Mining activity has a long history throughout the planning area but represents a static if not declining component of employment activity, both in absolute and relative terms. Current BLM records suggest this sector accounts for approximately 1.2 percent of the West Mojave employment base, or roughly 2,700 jobs. By contrast, EDD-based simulations suggest a significantly lower level of direct employment. The current base of mining employment describes the maximum conceivable economic impact that could possibly result from the removal of lands currently used for resources extraction, milling, and on-site production.

HCP program policies under Alternative A do not limit active operations at existing claims, which account for the current base of sector employment identified by BLM records. Most of the active operations discussed separately are not expected to exhaust remaining on-site resource capacity or represent the only verified deposits for a particular resource in the planning area. The proposed HCA designations, however, are likely to have a material but unknown effect on the long-term potential for future extraction and production of mineral resources not yet identified or quantified within the planning area. HCP regulations will require the development of future resources in designated HCA's to comply with the 1.0 percent AGD limitation and conform with best management practices for the protection of threatened and endangered species. Such limitations do not effectively preclude future operations but are likely to add to the cost structure defining current operations. In a number of undetermined circumstances, the HCP regulations are likely to render the development of future sites with yet unknown potential financially infeasible.

Recreation: Fundamental aspects of the West Mojave recreation experience influence the potential effect on area employment. Documented recreation activities throughout the West Mojave encompass a highly diverse range of activities, but most commonly evolve around the use of motor vehicles as a focal or ancillary element of the visitor experience. Beyond the mobility component of the experience, described recreation activities tend to emphasize immersion in the area's natural bounty (solitude, expansive vistas, wildlife, terrain, minerals, etc.) as opposed to manmade attractions and conveniences (theme parks, outlet centers, vacation resorts, convention centers, etc.). Also, Southern California describes the geographic origin for the vast majority of recreation visitors to the West Mojave. These factors affect the duration and nature of recreation visits to the West Mojave and also employment sectors most likely to be influenced by the recreational pursuits of day-trippers and overnight visitors.

Sectors most directly influenced by described recreation activities include: selected transportation services; retail activities involving the sale of food, provisions, gas, and meals; specialized services such as lodging, vehicle repair, and recreation; and directed government services (park rangers, sheriff, etc.). On a combined basis, these employment sectors represent about 18.0 percent of the current job base in the planning area or roughly 41,800 jobs. The estimated composition of employment influenced by recreation activity is summarized in Table 4-43.

Table 4-43
West Mojave Employment Influenced By Recreation

Employment Sector	Share of WEMO Employment	Share of Sector Employment
Transp./Utilities	0.36%	8%
Retail Trades	12.28%	57%
Services	4.51%	13%
Government	0.85%	5%
Total	18.00%	

Overall employment identified for each of the above sectors is primarily driven by current urbanization throughout the West Mojave, not recreation visitors.

Recreation visits are expected to augment identified employment levels but not necessarily drive a significant share of jobs identified. As an example, OHV usage throughout the West Mojave is broadly estimated to attract roughly 2.0 million visitors per year. This level of trip-volume is consistent with annual shopper-trips describing a busy neighborhood shopping center (i.e.: 120,000-square-foot center supporting roughly 200 retail jobs). Most OHV visitors, however, are part of a larger group, which significantly reduces realistic shopper-trip potential associated with OHV recreation, particularly for non-dining retail expenditures. In addition, a substantial portion of OHV trip-related expenditures are made within the hometown location of recreation visitors who primarily drive up from the Metropolitan Areas of Southern California. Consequently, non-dining retail expenditures are not likely to support more than 50 retail sector jobs providing $30,360 in annual income per worker, on average. A greater portion of OHV visitors can be expected to make dining-related expenditures during a given visit. A 60.0 percent incident rate describing the purchase of a hot or cold meal while within the West Mojave (aggressive) suggests equivalent economic support for roughly 140 restaurant jobs providing an average of $14,960 in annual income per worker, on average.

On a combined basis, the above levels of retail support describing OHV visitor expenditures represent roughly 190 jobs or about 0.8 percent of food store and dining retail sector jobs that currently exist throughout the West Mojave. The magnitude of effect used to describe the influence of outdoor recreation activity on the retail sector of the West Mojave tends to characterize the level of effect for other employment sectors identified. Reported recreation visitor activity in the planning area generates a notable but supplemental level of economic support for the current employment base of the region. The maximum possible effect of recreation activity on West Mojave employment and income, therefore, is substantially less than the above levels of employment describing those sectors influenced by recreation activity.

4.2.3.3 Livestock Grazing

4.2.3.3.1 Regional Public Land Health Standards and Guidelines for Grazing Man

The implementation of regional public land health standards and guidelines for grazing management are consistent with the recovery and conservation strategies contained in Alternative A. They contain changes in wording and the guidelines are more specific to this region, but do not differ significantly from the fallback standards and guidelines. There are no anticipated, additional impacts on existing livestock operations that would result from implementation of these measures, except the reduction in the utilization thresholds (see discussion below). The regional standards and guidelines would have to be incorporated into the grazing leases and permits for all allotments in the planning area.

There is a provision under regional guidelines for grazing management that would affect all cattle allotments on public land within the planning area: a reduction in the maximum percent utilization allowed for the current years' forage production. At present, forage utilization is managed with the use of Proper Use Factors (PUF's) of the individual forage species. PUF's may be as high as 50% or as low as 5%, depending on the plant species tolerance to grazing. Perennial bunch grasses have PUF's of 40% or 50%. Utilization within desert tortoise habitat but outside of tortoise critical habitat has been limited to maximum utilization thresholds of 40% and 50%. Under Alternative A, if an allotment that meets the regional public land health standards is grazed during the growing season the maximum utilization that may occur is 25%. This stipulation could cut stocking rates in half, and result in downward adjustments to the permitted use on some allotments. Although this management action may be warranted in poor and fair condition allotments and/or allotments not achieving the regional public land health standards, the implementation of this action on good and excellent condition allotments that are achieving the regional public land health standards may unfairly impact operations that have demonstrated good stewardship, and have little to no benefit in the recovery or conservation of covered species.

4.2.3.3.2 Cattle Grazing Outside Tortoise and MGS Habitat

Under Alternative A, allotments would be subject to rangeland health assessments within three years of plan adoption. Allotment assessments are already scheduled to occur, but due to their low priority the assessment would probably have taken longer than three years to complete. The proposed requirement to make a determination if regional standards are or are not being achieved within six months of the completion of the assessment does not differ from the existing public land health assessment process.

4.2.3.3.3 Cattle Grazing Within Tortoise Habitat and MGS Conservation Area

Management Under Existing Biological Opinions: A potentially significant detrimental impact on livestock operations arises from the need to comply with the non-discretionary terms and

conditions of the June 2002 CDCA Plan biological opinion issued by the USFWS. One of these terms and conditions require that all of the terms and conditions of the 1994 biological opinion (1-8-94-F-17) be fully implemented. If not, livestock grazing "shall" be suspended and livestock removed from the affected areas until the allotment is in full compliance. This term and condition also states that BLM must bring the allotment into legal compliance within one month. The potential affect on any given cattle operation would vary depending on which term and condition a lessee or permittee is not in compliance with, the size of the area affected, the location of key range improvements, current stocking rates, and current forage conditions.

Another potentially significant major impact is the requirement that if an allotment is not achieving public land health standards in tortoise habitat, livestock grazing shall be removed from the affected area of that allotment until the standard is achieved. This requirement may be even more difficult to implement. For example, if a plant community on any given allotment is not currently achieving the "Native Species" standard, it may take years or even decades of rest from grazing before that standard can be achieved (if ever). There would be enforcement challenges and additional budgetary burdens for BLM. The potential impacts on a cattle operation would depend on the size of the area affected, the location of key range improvements, current stocking rates, and current forage conditions. Presently the Walker Pass Common, Rudnick Common, Ord Mountain, Harper Lake, Cady Mountain, and Rattlesnake Canyon, allotments are not achieving public health standards in habitat for the desert tortoise. Rangeland health assessments have not been completed for the Lacey-Cactus-McCloud, Olancha Common, Tunawee Common, and Hansen Common, allotments. These non-discretionary terms and conditions are currently in effect and are not subject to plan approval.

New Management Prescriptions: Under Alternative A there would be five protective measures that would affect eight cattle allotments. None of these proposed management actions would have a major impact on the existing livestock operations.

The modification of the Lacey-Cactus-McCloud allotment boundary to exclude those portions of the allotment located within the boundaries of the China Lake Naval Air Weapons Station (NAWS) is a logical action because NAWS has cancelled livestock grazing within its boundaries.

The removal of cattle carcasses, and the elimination of hazards have been in effect on allotments within habitat for the desert tortoise since the issuance of the first Biological Opinion 1993 as terms and conditions.

Ephemeral use of cattle allotments would not be authorized until the production of 230 lbs/acre of ephemeral vegetation. This is a minor modification of the existing 200 lbs/acre requirement.

Only one action is truly "new": the requirement that all existing cattleguards in desert tortoise habitat be modified within three years after plan adoption to prevent entrapment of desert tortoises. This requirement would be costly to implement because the vast majority of the cattleguards installed on cattle allotments belong to BLM, so the necessary modifications would have to be made and paid for by

BLM.

Health Assessments: Under Alternative A, rangeland health assessments would be completed on these allotments within two years of plan adoption. This involves eight allotments administered by two BLM field offices. These allotment have already been scheduled for an assessment or re-assessment, but the requirement to have this task completed within two years after plan adoption would be difficult for BLM considering the implementation schedule of all the other management actions in Alternative A. The importance of doing, however, is high. Although the task would be difficult to achieve in these time frames, it is imperative that BLM determine if these allotments are achieving the proposed public land health standards as soon after plan adoption as possible.

4.2.3.3.4 Cattle Grazing Within DWMAs

New Management Prescriptions: Under Alternative A there would be potentially detrimental impacts on the Ord Mountain, Cronese Lake, Harper Lake, and Valley Well allotments. This is because cattle allotments partially or entirely within a DWMA would be subject to a requirement that a minimum ephemeral production of 230 lbs/acre exist if grazing is to continue on that portion of the allotment that lies within a DWMA between March 15 and June 15. If an allotment is entirely within a DWMA, and minimum ephemeral production is not attained, grazing operations on public lands would cease until ephemeral production meets or exceeds 230 lbs/acre or June 15, whichever is earlier.

This provision would have a substantially negative affect on the economic viability of cattle operations within DWMAs. These grazing operations depend greatly on the use of public rangelands to sustain their base herds. Most of the grazing lessees do not own or control enough private lands to support their base herd for 90 days without having to feed hay to their animals. As cited into EA-610-01-02 (Table 5), it is estimated that it would cost a grazing lessee anywhere between $18,000 and $20,000 to buy enough hay to feed a base herd of 100 cows for three months on their private land. One dry year could render economic disaster to a rancher in this example. Other alternatives, such as renting private pasture, would be almost as costly if even available. Two consecutive dry years would effectively put most of the affected grazing lessees out of the cattle business.

In addition, ephemeral authorizations would be eliminated. As a result, the Pilot Knob Allotment would no longer be available for cattle grazing. There would the elimination of temporary non-renewable (TNR) authorizations below 4,500 feet. These two provisions further reduce the grazing management options previous granted grazing lessees.

The other eight cattle allotments in the planning area would not be affected by these proposed management actions.

Health Assessments: Under Alternative A, rangeland health assessments would be completed on these allotments within one year of plan adoption. This involves three allotments in one field office. These allotment are already scheduled for an assessment or re-assessment, but the

requirement to have this task completed within one year after plan adoption would be difficult for BLM considering the implementation schedule of all the other management actions in Alternative A. It is imperative, however, that BLM determine if these allotments are achieving the proposed public land health standards as soon after plan adoption as possible, so creative approaches to completing this requirement would have to be developed.

4.2.3.3.5 Sheep Grazing in All Allotments

Management Under Existing Biological Opinions: Ephemeral sheep grazing in desert tortoise habitat has been managed under the terms and conditions issued in biological opinions since 1991. An extension of the 1994 biological opinion issued in May 17, 1999 reiterates the same terms and conditions contained in the 1994 biological opinion. The June 2002 biological opinion on the CDCA Plan requires the BLM to implement terms and conditions identified in previous opinions. This biological opinion also contains a term and condition related to public land health standards, requiring that rangeland health assessments for sheep allotments occur within four years of plan adoption. This term and condition would apply after these assessments are completed.

New Management Prescriptions: Under Alternative A, there would be very little change from the existing situation. The requirement that 230 lbs/acre of ephemeral forage production occur before ephemeral sheep grazing can be authorized is only slightly higher than the existing requirement of 200 lbs/acre. This should have little or no effect on sheep producers, who do not incur the expense of shipping their sheep from Bakersfield to the desert unless there is at least 350 to 400 lbs/acre of ephemeral forage awaiting them.

The requirement to remove and dispose of sheep carcasses is also an existing requirement.

This alternative would modify the maximum number of sheep in a band from 1,000 to 1,600. This provision takes into account the shipping of lambs and the combining of ewes from other bands, which makes sense for a larger band size to exist when this situation occurs.

Health Assessments: Under Alternative A, health assessments would be required within four years of plan adoption. This provision would delay BLM's ability to determine if regional public land health standards are being achieved or not achieved. In the Barstow Field Office, all the existing sheep operations occur on allotments within OHV Open Areas. If a determination is made that a standard is not being achieved, the determination must also decide if ephemeral sheep grazing is the primary cause. This may lead to changes in the management of whatever is the primary cause of the failure to achieve a standard.

4.2.3.3.6 Sheep Grazing In MGS and Mojave Monkeyflower Conservation Areas

Under Alternative A., ephemeral sheep grazing would cease in the MGS Conservation Area

when ephemeral forage is no longer available and sheep make a dietary change to perennial shrubs. More specifically, there would be a utilization threshold of key shrub species (see Table 2-19) important to Mohave Ground Squirrels that would trigger sheep removal. This approach makes sense, and is compatible with the recovery and conservation goals of Alternative A

Ephemeral sheep grazing would be discontinued in the portion of the Mohave Monkeyflower Conservation Area that overlaps the Middle Stoddard Mountain Allotment. This management action would eliminate the potential for most future grazing in this portion of the allotment. Due to a large land exchange in the late 1990's, most of the remaining public land in this use area occurs within the proposed conservation area. Due its rocky nature, very little sheep grazing has historically occurred here, so impacts on the ephemeral sheep operation on the Stoddard Mountain Allotment would be nominal.

4.2.3.3.7 Sheep Grazing in DWMAs

Under Alternative A, there would be a potentially detrimental impact to grazing operations on the Buckhorn Canyon, Gravel Hills, Superior Valley, Goldstone, Lava Mountain, and a portion of the Cantil Common allotments.

The Goldstone, Superior Valley, Gravel Hills, and Buckhorn Canyon Allotments would no longer be available for sheep grazing. These four allotments are either partially or entirely within a DWMA. There would, however, be no "real" impacts on these sheep operations because the allotments have not been grazed since the late 1980s, and have not been authorized for ephemeral sheep use since 1991. Biological opinions issued in 1991 and 1994, addressing ephemeral sheep use on public land in Category I and II habitat and critical habitat for the desert tortoise, disallowed ephemeral sheep grazing on these allotments.

Although the Lava Mountain Allotment is neither partially nor entirely located in the Fremont-Kramer DWMA, the Fremont-Kramer DWMA boundary blocks all historically used access roads outside the allotment. The allotment is entirely within the Golden Valley Wilderness, which at the current time does not allow motorized access. Unless authorization to use motorized vehicles is given to the sheep operator it is unlikely that grazing would continue on the allotment.

The Fremont-Kramer DWMA is larger than the desert tortoise critical habitat boundary and would eliminate more grazing in the Cantil Common Allotment than was mandated in the past biological opinions. At least one entire use area for an operator would be eliminated in the southern part of the DWMA below Atolia.

The Goldstone Allotment is currently vacant, and entirely within lands transferred by Congress to Fort Irwin in 2001. Under Alternative A the vast majority of the Buckhorn Canyon Allotment would be within a DWMA where ephemeral sheep would not be allowed on public land. The Gravel Hills and Superior Valley allotments, however, are not vacant. The permanent discontinuation of ephemeral sheep

grazing on these two allotments would have a negative impact on the lessees.

There would be an additional loss to ephemeral sheep grazing of approximately 6,700 acres of public and private land in the Shadow Mountain Allotment. The proposed Fremont-Kramer DWMA would extend farther south than the current critical habitat boundaries. This moderate disruption to current operations would compel any future sheep grazing to operate within the fenced boundary of the El Mirage Cooperative Management Area. Although this is allowed under the management plan for El Mirage, potential conflicts between sheep grazing and OHV use would increase as a result of this action.

There would be a permanent discontinuation of ephemeral sheep grazing on 99,327 acres of both private and public land in the West Unit of the Stoddard Mountain Allotment. Because sheep grazing has been prohibited in Category I and II tortoise habitat since a 1991 biological opinion, this unit of the allotment has not been authorized for ephemeral sheep grazing in over ten years. Consequently, there would be no real impact to the grazing operation.

There would be a new loss of approximately 11,000 acres of public land in the Middle Unit of the Stoddard Mountain Allotment, which would be unavailable for ephemeral sheep grazing. Sheep grazing would be prohibited in the Mohave Monkeyflower Conservation Area.

There would be no substantive affect to ephemeral grazing operations on the East Unit of the Stoddard Mountain Allotment being outside of a DWMA.

4.2.3.3.8 Voluntary Relinquishment of Grazing Allotments

Voluntary relinquishment of a grazing permit or lease is consistent with the recovery and conservation strategy of Alternative A. This action, however, substantially limits any opportunity for the livestock industry to expand. Once an allotment is relinquished the opportunity for another permittee or lessee or other qualified applicant to apply for the use of that allotment, or the attached permitted use, would be eliminated. In fact, voluntary relinquishment would further reduce this long-standing industry.

4.2.3.4 Mineral Development

This section discusses the effects of implementation of Alternative A on the development of the mineral resources of the western Mojave Desert. It is organized into three parts: (1) a general discussion of specific components of the conservation strategy, such as the implications of standardized best management practices, proposed withdrawals and certain species-specific measures; (2) the effect on regional mineral development; and (3) the effect on mineral development of the designation of several of the conservation areas.

4.2.3.4.1 General Discussion

Best Management Practices: Adoption of standardized "best management practices" in tortoise habitat requires that the field contact representative be an authorized biologist. This would result in an added cost to hire this person to be on site at all times during the construction phase of the project (including fence construction) rather than only when tortoise handling would be required. This cost would be more than compensated for by the significant savings of time in not having to obtain "authorized biologist" status for a particular project, as is the current practice. In other words, a biologist could be authorized for a multitude of projects instead of being re-authorized for every project.

Allowable Ground Disturbance Threshold: It is anticipated that the one percent allowable ground disturbance (AGD) for habitat conservation areas would not be reached as a result of mining disturbances during the 30-year term of the West Mojave Plan.

Bat Conservation Measures: Regarding bat protection in the Pinto Mountains, a project proponent would be required to conduct surveys under both Alternative A and current management. Under Alternative A, abandoned mine openings in several mines would be withdrawn from mineral entry or otherwise protected to protect significant bat roosts. Unless covered by a current claim with valid existing rights, this would require alternate access to be constructed by miners wishing to enter the underground mines. The management prescriptions under Alternative 'A' specify take-avoidance measures for non-significant sites only. Take of significant roosts would be considered unnecessary and undue degradation and mining proposals that would disturb them would probably be denied. There are no known current mining claims encumbering abandoned mines containing the Pinto Mountain bat roosts. Mines in the area such as the Golden Rod and Moose mines are described in an unpublished volume compiled by a California Division of Mines and Geology employee (Gray, Jr., 1978?, p. 459 & 587).

Proposed Withdrawals: Withdrawals are proposed for three of the conservation areas. Most of these have moderate to high potential for mineral resources. The proposed withdrawals, aggregating about 50,000 acres, are tabulated below:

Conservation Area	Acres Proposed For Withdrawal
Afton Canyon ACEC	8,160
Lane Mountain Milkvetch	12,100
Rand Mountains	32,590
Bat Mine-Entrances	unspecified but small

On public lands and mineral interests reserved to the United States, mineral exploration, development and locating new mining claims would be prohibited where there are mineral withdrawals.

Conservation areas requiring withdrawals and validity exams would result in an administrative burden on the BLM. The delay resulting from a validity exam is estimated to be two to three years for the examination, report review, scheduling of a hearing, and processing appeals. The cost, ultimately passed on to taxpayers, is estimated to be $25,000 per exam. Further, these withdrawals would

eliminate future prospecting and exploration and deny future mineral extraction in some of the country's most mineralized areas. With the exception of Afton Canyon, all of the areas proposed for withdrawal or validity exams contain zones of moderate or high potential for the occurrence of mineral resources.

Potential economic benefits of possible future production may also be foregone. In addition, acquisition of private lands for reserve or conservation areas by government agencies Alternative A would place restrictions and costs on future exploration and development to some degree, thereby resulting in lowering mineral resource availability.

When the U.S. Bureau of Mines conducted their mineral resource assessment in 1992 and 1993, an impacts analysis with deposits forgone for the Rand Mountains-Fremont Valley Management Plan, the only part of the West Mojave Management Area being proposed for withdrawal at that time, they found that $227 million in mine revenues, $131 million in personal earnings, and 408 construction-related and 372 production-related jobs may be foregone in addition to one future open-pit heap-leach gold.

Tax Base Effects: Acquisition of private inholdings in most of the proposed conservation areas such as carbonate endemic plants, Brisbane Valley, and the Lane Mountain milkvetch ACEC, would not result in a loss of tax base because mineral development would already be precluded by BLM's management prescriptions in the area of the species being protected. Acquisition of private inholdings in the Pisgah Crater ACEC, however, would likely result in loss of tax base to the counties. The loss of tax base from the sand and gravel deposit in the Big Rock Wash Conservation Area would not be a factor within the 30-year term of the West Mojave Plan as adequate resources outside the conservation area that could meet local market needs have been identified through the year 2046.

4.2.3.4.2 Regional Mineral Development

Overview: Most existing resources being developed currently within the CDCA would be depleted within the 30-year term of the West Mojave Plan. During this period, most operators would be seeking additional resources to meet market needs and assure the continuation of their operations in the area. Most of these deposits are expected to be smaller, lower graded, and further from existing plant facilities and market areas. By the mid-2030's, mineral producers and developers would be planning to develop these deposits, which generally would be less desirable than what is currently being mined. For example, U.S. Borax would probably be developing smaller or lower graded deposits such as the Rho, Hill 395 (Fremont-Kramer DWMA), and possibly the Columbia Gem (Ord-Rodman DWMA). It isn't known if the company would choose in situ mining and leaching or some other method for recovery.

Likewise, the limestone/cement industry would be planning new quarries, but because there is a greater occurrence of deposits in the desert region, the choice of a particular deposit 30 to 40 years from now is difficult to predict. Because of the cost and permitting obstacles in constructing a new mill and cement plant, the focus would be on deposits within haul distance of existing plants, using high

capacity, non-highway conveyance systems. As such, most carbonate resources in and around the Lucerne Valley and Victorville areas, as well as the San Bernardino National Forest would be favorite targets by these companies.

Sand and Gravel Aggregates: By the late 2020's, aggregate shortages would probably occur in the Los Angeles and high desert market areas, and the restrictions and costs imposed by Alternative A for developing new sites would become noticeable. Depending on the location, the same mitigation costs would be part of the other alternatives as well. The reduction in feasible alternative sites or mitigation costs imposed by the plan would hasten depletion of those deposits that could still be economically mined. This conclusion is based on the following information.

Among the sites that could be at or near depletion by the 2030's are the Service Rock aggregate deposit in Barstow and a number of small deposits along the highway west of and north of Oro Grande (north of Victorville), and the Opah Ditch aggregate site southwest of Baker (Category III habitat).

In addition, depletion in coastal counties would put pressure on the desert region to furnish their aggregate requirements. Los Angeles, Orange and Ventura Counties produce and consume more construction aggregate than any other metropolitan area in the United States, more than 35 million tons in 1997 (Beeby et al., 1999). Forecasts regarding the rate of population growth, zoning ordinances, and resource depletion lead to the conclusion that alternative sites must be found. For example, at the average rate of historic aggregate consumption in the Barstow-Victorville production district, including Lucerne Valley, the total reserves would theoretically become exhausted by 2027 (Miller, 1994, p. 8). A 1977 report for the aggregates in the Greater Los Angeles Area predicted that the last extremity of the producing aggregate deposits would be reached in 2005, when the upper Santa Clara River production district is meeting the entire demand load of 43.4 million tons (Evans, et al., 1977, p. h).

Some of the outlying deposits such as in the Palmdale production-consumption (P-C) region (Big Rock and Little Rock fans) are "nearly adequate" for supplying construction aggregate for the existing population of inhabitants and the anticipated population increase by the year 2032, using an average annual consumption rate of 12.2 tons per capita. The total projected estimate is 122 million tons that would be needed to meet the local demand for the Palmdale P-C region (Joseph et al., 1987, p. 39). The Little Rock Creek fan, in the Palmdale P-C region, is predicted to reach depletion by 2046, only about a decade after the term of the West Mojave Plan. Almost all current aggregate sites serving the Los Angeles metropolitan area would be depleted of reserves by about 2017 or less (Beeby et al., 1999).

The forecast for Orange County is critical with a 50-year demand estimate of 779 million tons, and known reserves of only 55 million tons (Falasco, 2001, p. 7). Should unforeseen events occur, such as massive urban renewal, disaster reconstruction, or major recession, the aggregate demand could change considerably. The presence of the San Andreas fault system within the Palmdale P-C region and its proximity to the Saugus-Newhall P-C region increases the chance for a damaging earthquake

and subsequently the need for extensive amounts of aggregate for reconstruction (Joseph et al., 1987, p. 39).

Alternative sources of aggregate include opening hard rock quarries in places like Oro Grande and the Stoddard Open Area, developing more remote alluvial deposits such as the lower slopes of the San Bernardino Mountains and the Blackhawk Landslide in Lucerne Valley, rail hauling aggregate from Lytle Creek and Nevada, modification of boundaries of restricted areas such as the Soda Mountains wilderness study area, and dredging offshore deposits (Williamson, 1990, p. 1).

4.2.3.4.3 Mineral Development Within Specific Conservation Areas

The anticipated effects on mineral development within selected conservation areas having above-average mineral potential are described below.

Tortoise DWMAs: The four DWMAs combined include nearly 300,000 acres having moderate to high potential for the occurrence of mineral resources. In addition, there are over 900 mining claims and 20 mill site locations. Important borate deposits occur north of Kramer Junction in the Fremont-Kramer DWMA; however, the amount of acreage required for development is difficult to assess at this time. Existing mines in DWMAs, where the activity is not in occupied habitat, would be allowed to continue without compensation payments because they qualify as grandfathered uses.

Mohave Ground Squirrel Conservation Area: The MGS Conservation Area includes about 1.2 million acres, of which 400,000 acres overlap the DWMAs. About 264,000 acres of the non-overlap area have high and moderate potential for the occurrence of mineral resources. In addition, the conservation area contains 680 mining claims and 40 mill site locations. Existing mines in HCAs would be allowed to continue without compensation payments (if in an area unoccupied by tortoises) because they qualify as grandfathered uses.

Big Rock Creek Conservation Area: About 2,400 acres of private land having high potential for sand and gravel (SMARA MRZ-2) are within the Big Rock Creek Conservation Area in Los Angeles County. This portion of the deposit would likely be placed off limits to sand and gravel extraction because the conservation goal is to conserve the wash in "its natural state". Specific management is to allow stream flow and sand transport to continue. To meet this goal, 1) acquisition funds would be directed toward willing sellers of land within the Big Rock Creek Conservation Area, 2) Los Angeles County SEA boundaries would be expanded, and 3) no structural flood-control improvements would be allowed south of Highway 138. This would represent a resource loss estimated to be 1.2 billion tons including the main portion of the fan with sand and gravel that could be mined to a depth of 50 to 55 feet (Joseph et al., 1987, p. 20 & 21). This loss would probably not be noticed within the 30 year life of the West Mojave Plan because the forecasted depletion date for the nearby Little Rock Wash fan is not until 2046 (Beeby et al., 1999).

Carbonate Endemic Plants Conservation Area: The proposed ACEC is located on the east

side of Highway 18. Within the proposed ACEC are 257 acres having high potential and 4,416 acres having moderate potential for the occurrence of carbonate and aggregate mineral resources. In addition, there are known to be 41 mining claims within the proposed ACEC. It is anticipated that at least 4,393 acres would be placed within the highly restrictive ACEC. The proposed ACEC contains a zone in the Round Mountain area identified as having moderate potential for the occurrence of limestone and has had recent exploration interest from two companies. Under Alternative A, the area would be a reserve with stringent protective measures that would discourage exploration and the opportunity to determine the extent of those mineral values. Experience has shown that even under current management, the required surveys cause the proponents to withdraw their plan of operations for exploration rather than incur survey costs when the outcome is uncertain.

Regarding the area west of Highway 18, due to the presence of populations of Parish's Daisy and other protected plants, a company that proposes expansion of a limestone mine or an aggregate pit would face a 3:1 compensation requirement in terms of "conservation units" (instead of land value) for take permits. Protected plants may be destroyed, although no loss of these plants may occur within any CHMS "administrative unit" until most of the valuable carbonate plant habitat in the CHMS's "Stage 1 Priority Areas" within such units has been added to the Habitat Reserve (Olson, 2002, p. 11). At present, by comparison, the proponent on private land would be limited to avoidance of plant populations rather than having the option of development by participating in a 3:1 compensation program. The CHMS is a voluntary program.

Impacts in the form of increased costs and placing some deposits off limits would occur in the carbonate management boundary (regardless of which plan alternative is chosen). Carbonate and aggregate operators currently have adequate resources outside the CHMS reserve area sufficient to supply the present market and the anticipated market throughout most of the 30-year term of the West Mojave Plan. This may not be true by the end of the plan's term. In the case of aggregate forecasts, it is anticipated that by the 2030's shortages would occur not only in the local community but also in other communities and counties that could be supplied by deposits in the Carbonate Plants Conservation Area.

Lane Mountain Milkvetch Conservation Area: The following discussion of the Lane Mountain milkvetch HCA is tentative, pending the designation of critical habitat by the USFWS. The proposed conservation area for the Lane Mountain milkvetch contains nearly 12,000 acres of moderate to high potential for gold. The proposed withdrawal of about 12,000 acres would preclude exploration and mining. Validity exams required for mining activity on 22 mining claims (about 1,000 acres) in the Lane Mountain milkvetch conservation area at Coolgardie Mesa would be costly. The withdrawal requirement, if coupled with a prohibition of recreational mining or collecting under 43 CFR 8365, would also mean a loss of enjoyment and income from the gold prospecting/recovery experience on the part of the club members who ordinarily operate where the withdrawal is proposed. If the claims were found to be invalid, the dry washing gold miners would be unable to continue their activity on claims within the Coolgardie Mesa portion of the Lane Mountain Milkvetch Conservation Area. Either that, or they would have to bunch up with other members on mining claims outside of the withdrawal. This

would have a tendency to increase impacts on tortoise habitat west of the milkvetch ACEC. Because there is no provision for take or disturbance of milkvetch, any mining proposal on a portion of a perfected, valid claim within the HCA would result in a takings issue and buy out of the mining claim.

Even without a withdrawal and validity exams, the "no take" provision coupled with the difficulty for miners to identify the plant would lower the threshold level of surface disturbance to more than "nominal", necessitating a plan of operations so that the current "casual use" level of activity of digging holes for dry-wash sluicing would probably require BLM authorization. If this were the case, it is anticipated that most plans of operations would be filed by the mining club owners because individual members would be reluctant to post a reclamation bond and pay for plant surveys and 5:1 compensation for lost habitat. If the withdrawal proposal were removed, "take" could probably be avoided only by an adaptive management strategy requiring new plant surveys in a limited area between the rectilinear conservation area boundary and the somewhat smaller polygon based on survey results. Actually, there are two such areas because of the donut-like shape of the milkvetch population. If this were the case (no withdrawal), new plant surveys would mean an additional cost and delay for claimants. A validity exam requirement, if maintained under an adaptive management strategy, would also cause a delay in processing a plan of operations.

Route designation would not affect mining activity in the Lane Mountain Milkvetch Conservation Area because those lands would be under a withdrawal that would exclude mining activity anyway. Proposed closure of routes such as SU 3022, -3028, -3035, -3045, -3046, -3058, -3061, and -3063 would discourage dry washing for gold on portions of about half a dozen mining claims west of the proposed HCA. Access to those areas would require a plan of operations and associated bonding for authorized access on those routes and other routes that are not designated or signed as open. The extent of the delay depends on the willingness of the current claimants to file a programmatic plan of operations. The requirement to restore routes to original condition would impose no additional cost because numerous routes already exist. For this reason, the impact from bonding reclamation would be minimal.

Mohave Monkeyflower Conservation Area: Alternative A proposes a 5:1 compensation for expansion in the conservation area for the Brisbane Valley population of the Mojave monkeylower. The compensation requirement would discourage mineral development in an area where there are 46 mining claims and over 7,000 acres having moderate to high potential for the occurrence of gold, and sericite and other types of clay. Because the operating cement quarries are in the "survey initiative" part of the Brisbane Valley conservation area, any expansion would require a survey and a minimum of 1:1 mitigation fee. The same would apply to any future aggregate development in this area. Three sites in this zone have been classified as MRZ-2b (high likelihood that economic concentrations of minerals are present) under SMARA (Miller, 1993, p. 38 & 39). The Oro Grande aggregate and Portland cement production areas border the proposed Brisbane Valley conservation area and are within the survey initiative area requiring a compensation fee. The effect would be a slight increase in the cost of producing cement and aggregate.

North Edwards Conservation Area: It is anticipated that the proposed North Edwards Conservation Area would not adversely affect the periodic extraction of clay from the large stockpile on private land west of the town of Boron in Kern County. Management prescriptions call for an easement, which should not interfere with the clay operation. This conservation area contains 30 acres having moderate potential for the occurrence of industrial minerals. There are no mining claims within the HCA as it is mostly private land.

Pisgah Crater Conservation Area: Cinders are being mined on a small scale, and it is presumed that hectorite and borate mining would continue for decades in the Pisgah Crater Conservation Area. Existing mining would be allowed to continue within this conservation area, which contains nearly 9,000 acres of high potential for the occurrence of mineral resources. This area contains nearly 300 mining claims and 85 mill site locations. The effect on new mining from the proposed ACEC is unknown because Alternative A is silent on restrictive prescriptions for this. Because of the time constraints for bidding on jobs, paving and aggregate contractors cannot risk waiting for the outcome of an environmental study and appeals procedures before a contract for material can be authorized. The uncertainly of being allowed to mine coupled with the mitigation fee of 5:1 would discourage mining because it would be less costly in other locations. The loss in mineral royalty over the 30-year life of the West Mojave Plan is estimated to be $7.5 million for railroad ballast, road base and paving material. In the case of private land, there would probably be a loss of taxes to San Bernardino County and a loss of employment and business by the local community if resource could not be developed within the market area.

Rand Mountains: As recommended in the Rand Mountains, Fremont Valley Management Plan (1993, p. 21), 32,590 acres in the Rand ACEC would be withdrawn from mineral entry. This area contains about 5,000 acres having moderate potential for vein or disseminated gold. The area also includes 3,200 acres of placer gold known as the Koehn placer, also known as the Cantil Valley placer (Dunn, 1992, p. 22-23). Neither the Rand ACEC nor the Fremont-Kramer tortoise DWMA includes the Sanford Stone mining operation.

Expansion of existing material sales sites would be allowed to continue, but new mining claims, exploration and mining would be prohibited. Although the final plan for the Rand-Fremont management area allows for much of the identified mineral resources to be developed, estimates show that an additional $227 million in mine revenues, $131 million in personal earnings, and 408 construction-related and 372 production-related jobs may be foregone (Dunn, 1992, p. 6). In 1992 the U.S. Bureau of Mines estimated that one future open-pit heap-leach gold operation beneath thin alluvial deposits would be lost (Dunn, p. 30). There are at least ten mining claims in the proposed expansion area, so the time and cost of conducting validity exams is an added impact. The northeast portion of the management area includes claims owned by Orange County 49ers, Inc. and the Valley Prospectors, Inc. (T.29 S., R.40 E., Sec. 28, SE1/4). The future of their operations depends on the outcome of future validity exams. The plan does not specify whether mining on valid claims would be allowed to continue of if the claims would be bought out.

4.2.3.4.4 Mineral Impacts: Conclusion

The advantage of Alternative A compared with current management is providing standard mitigation, such as incidental take permits, which would save time on private land. The elimination of surveys for the MGS would save time and money for many projects. Regarding the desert tortoise and Mohave ground squirrel, presence-absence surveys would be eliminated for areas outside of DWMAs. Clearance surveys would still be required for the tortoise except in areas where its presence is unlikely. Consultation, on a project-by-project basis would still be required. Existing mines in DWMAs, where the activity is not in occupied tortoise habitat, would be allowed to continue without compensation payments because they qualify as grandfathered uses. It is anticipated that the one percent AGD for habitat conservation areas would not be reached during the life of the West Mojave Plan.

4.2.3.5 Regional Recreation Opportunities

A substantial increase in demand for access and related services would occur primarily because of increased population growth in Southern California. Other factors include:

- An emerging awareness of desert resources and values
- Saturation of other outdoor recreation areas in Southern California
- Energy shortages and economic stresses that would cause more people to come to the relatively nearby desert and stay longer
- Technological innovation in recreational equipment that would influence user trends and consequently the demand for various resources

All of this suggests that the demand for access into the California Desert's public lands is on the increase, and that the need for the judicious designation of routes into these large areas is high.

Under Alternative A, the western Mojave Desert will continue to offer a variety of areas and types of routes that will meet the needs of recreational users. While some activities such as competitive OHV racing have been curtailed and moved to areas specifically designated for that purpose due to environmental reasons (e.g., Stoddard Valley and Ord Mountain open area), the regional recreational needs of the public were carefully taken into account as they were weighed against other resource concerns. As a result the proposed route network largely meets public recreational and commercial motorized access needs. The Table 4-44 reviews some of the effects of the proposed route network upon recreation opportunities within several of the more popular West Mojave subregions.

Table 4-44
Effects on Specific Types of Recreation

SUB REGION NAME	MC	4WD	EQUES-TRIAN	HUNTING	ROCK HOUNDING	HISTORIC EXPLOR-ATION	NOTES

Coyote	Moderate recreational opportunity for M/C. Greater closures in flat areas such as Coyote Lake	Moderate 4WD opportunity. Impacts on checker-board ownership low.	Staging opportunities continue to exists in spite of moderate closures.	Moderate bird hunting opportunities – closure is low impact	Moderate Rock hounding & mining - closure has low impact	Touring for interest in a few old mines, such as the Alvord Mines.	B to V started at Alvord Rd north of I-15 and continued east on utility easement.
El Mirage	Route closures in the flats will impact touring opportunity. Technical riding opportunity in mountains maintained.	High route closures in flats will have minimal impact. Technical routes maintained in Shadow Mountains. Larger OHV interest in El Mirage Dry Lake	Low Equestrian demand Potential equestrian opportunities maintained in Shadow Mtns	Low Hunting Demand Route closures will little impact to hunting opportunity.	No high level interest in rock hounding. Access routes in Shadow mountains remain for exploration.	No high level interest in historical exploration. Access routes in the Silver Peaks and Shadow mountains remain for exploration.	There is some recreation interest in area of Shadow Mts. and Rabbit Hole Mine
Fremont	Loss of touring opportunity in southern section	Loss of touring opportunity south of Harper Dry Lake.	No loss of technical opportunity; some loss of touring	No loss	Minimal loss in the mountains.	Minimal loss in the mountains.	Exploring through traveling of old routes such as Cuddeback - Fremont Road, Lockhart Road, and Harper Lake Road.

Juniper	Popular MC opportunity due to relative proximity to the Apple Valley and Victorville. Leaves intact the viable route network with minimal impact.	Moderate to heavy level of route closures but viable route network left intact.	Equestrian access to San Bernardino National Forest through primary routes such as the Pack Trail and trails along Grapevine Canyon. Just north of the Pacific Crest Trail. Minimal impact on equestrians.	Moderate size of subregion does not offer a high level of hunting opportunities, however the proposed route network accommodates hunting.	Subregion does not offer a high level of rock hounding opportunity.	Allows trail access to early historic sites in San Bernardino Mountains relating to late 1800s and early 1900s time period.	Relatively small subregion located at the north base of the San Bernardino Mountains and on the north edge of the San Bernardino National Forest. Access still provided to most popular routes and staging areas.
Kramer	This is a moderate use sub region. High levels of closures have a moderate impact.	Moderate use sub region. High levels of closures have a moderate impact on 4WD recreation, travel on Kramer Rd, Buckhorn Wash and Iron Mtn Rd in east Kramer.	Low equestrian interest. High levels of closures have little impact. Opportunity maintained in Iron Mtns.	Low draw for hunting High level of closures will have little impact on opportunity.	Historic high interest in Kramer Hills. Access opportunity in that area maintained.	Low historical interest Hi closures Low impact	Activity level of this sub - occurs because of Proximity to Highways 395 & 58
Middle Knob	Moderate MC opportunity.	Significant interest in 4WD activity related to mining and maintaining facilities such as the Los Angeles Aqueduct.	Moderate level of 4WD routes offer access for equestrians; this access is maintained since there is a low amount of closure.	The existing 4WD network provides good access to the Middle Knob area for hunting.	There is a minimum of rock hounding interest in this area; trail network provides some opportunity.	Historic exploration can be enjoyed through visitation of old mines, such as the Amalia Mine and Skyline Mine.	There are recreation opportunities through traveling on maintenance routes to the Los Angeles Aqueduct.

Newberry - Rodman	Relatively low demand for MC recreation; much of the central portion of the subregion is within Rodman Mtn and Newberry Mtn Wilderness.	Some 4WD opportunity, but relatively small network of routes.	Low level of equestrian recreational opportunity due to low number of appropriate trails.	Low level of hunting opportunity.	Relatively high interest in rock hounding, due to presence of several mines such as the Bell Mine, Silver Cliffs Mine, Camp Rock Mine, and the National Mine.	Good access off of Interstate 40 and Fort Cady Road to mining areas and primary 4WD routes for circulation, such as Troy Road and Fort Cady Road.	Network provides access to the Newberry Mountains and Rodman Mountains Wilderness, and also the Johnson Valley OHV Area to the south.
Red Mountain	High recreational opportunity maintained by selective site-specific moderate closures. Route closure plan will reduce recreation opportunity at Cuddeback Lake.	High 4WD interest will be moderately impacted by closures. Route closure will reduce recreation opportunity at Cuddeback Lake.	Moderate equestrian opportunity. Moderate closures will lead to moderate impacts.	High interest. Moderate closures will impact opportunity moderately.	Very high levels of historic and present day mining activity. Moderate closures may result in only moderate impact due to minimal access needs being met by network.	Historic interest in mining. Opportunity maintained by selective closures.	Mountainous terrain in north offers interest in OHV activities, north of Twenty Mule Team Road and Cuddeback Lake.
Superior	Moderate recreation opportunity. Moderate to high route closure. Moderate impact.	Moderate recreational opportunity. Moderate to high route closure. Recreational impact generally low.	Moderate to high equestrian demand. Moderate to high closures done selectively; impact low.	Low to moderate hunting demand. Good route network, low recreational impact.	High rock hounding demand. Network maintained, little impact.	Moderate interest. Low impact to recreational opportunity.	Region has high tortoise numbers so many routes closed. Those routes retained still offer a complete network.

Note: MC = Motorcycle; 4WD = Four Wheel Drive Vehicles

Recreationists who cannot participate in their desired activity in one location may seek an alternate site elsewhere. The result may be "spillover" into areas adjoining or nearby the location where the visitor originally went to recreate. This increases the chances of random travel, perhaps by using closed routes or new cross-country, in search of a new site. In order to minimize travel on closed routes or the creation of "volunteer routes", additional signs and other informative media can be used to direct recreationists to other locations, via designated routes, where the desired type of recreation exists. This would, however, increase workload demands on BLM staff to maintain signs along

designated routes. Examples of this may occur in the Kramer sub region in the areas adjoining the community of Silver Lakes or in areas north of Barstow in the Superior sub region.

Competitive Events: With the exception of the Barstow to Vegas and Johnson Valley to Parker races, and the use of "C routes", all competitive timed speed events have occurred in the OHV open areas since the CDCA Plan was adopted in 1980. The Barstow to Vegas and Johnson Valley to Parker races have not been run for nearly 15 years, so with the exception of the events that have used the "C Routes" near the Spangler OHV area, all competitive racing has been located within the OHV Open areas. Alternative A does not reduce the size of the OHV areas; therefore, the amount of land available for competitive events compared to the No Action Alternative would not be changed.

Both the 29 Palms Wild West Grand Prix and Adelanto Grand Prix are held entirely on private property that has previously been approved for recreational activities such as this. As such, no effect is anticipated.

Stopping, Parking and Camping: In general, the proposed stopping, parking, and camping prescriptions (MV-5 and MV-6) appear to be workable in the majority of situations. However, they do raise some concerns. Strictly limiting stopping and parking to within *50' off designated routes* may eliminate motorized access to the ends of some of the spur roads that branch from through routes and lead, after a few hundred feet, to campsites or trailheads. Only the first 50 fees of such routes would be open. Campsites at the end of these spur routes tend to be popular because they afford visitors additional privacy. This would make it more difficult to reach these campsites. Limiting camping to previously disturbed areas (MV-5) would be difficult to enforce, unless these sites are marked or otherwise identified. Lack of compliance would greatly minimize the effectiveness of this proposal

4.2.3.6 Regional Transportation System

The West Mojave Plan is expected to have little or no effect on the circulation patterns of the planning area. There are no recommended public road closures as a result of this plan. This section only evaluates the maintained public roads in the plan area; unmaintained or private routes are more closely analyzed in the route designation section of this plan. As mitigation measures are further defined by the plan, potential maintenance issues along roadways will need to be addressed, including the construction of Desert Tortoise highway fencing and the assignment of responsibility for fence maintenance.

4.2.4 Motorized Vehicle Access Network

The proposed motorized vehicle access network would meet recreational and commercial needs throughout the 30-year term of the West Mojave Plan. The network would consist of 5,098 miles of motorized vehicle routes, including single-track routes that were not necessarily addressed by the existing 1985 and 1987 route designations. Layout of the route network in the redesign area would provide better opportunities for touring, technical 4WD, and loop routes than the existing network offers. Table 4-45 addresses these factors in greater detail, and discusses the general effects of the

proposed motorized vehicle access network on public access to each of the route subregions.

Table 4-45
General Impacts of Route Designations
On Motorized Vehicle Access

SUB REGION (MILES OPEN)	DIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY	INDIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY:	NOTES
Coyote (255)	Relatively more routes were closed in the area of Coyote Dry Lake and Superior Valley, providing less access in this area.	The general touring opportunities lost due to closures will shift such activities to other similar areas where such opportunities still exist, such as the northern portions of the Superior sub region.	Closures of routes in this sub region are moderate and primarily aimed at duplicity. The eastern legs of Coyote that surround the Soda Mountains WSA had moderate closures of routes and thus, less access to the WSA.
El Mirage (91)	A proportionately higher number of route closures occurred in those areas characterized by "bajada" topography, limiting travel in this type of landscape. A proportionately higher number of routes were kept open in the more mountainous terrain. A proportionately higher number of routes were kept open in the more mountainous terrain, such as in the Shadow Mountains near Rabbit Hole Mine.	Route closures in the flatter topography will afford more buffer protection to the private properties that checkerboard the area, thereby reducing conflicts between different uses.	The network largely addresses recreational and environmental needs. Route closures in the flatter topography will shift some of that use to other areas where the concerns related to tortoise protection are not as high, e.g. to the El Mirage OHV Area, in particular the El Mirage Dry Lakebed.
El Paso (324)	No change from the currently designated route system.	No change from the currently designated route system.	
Fremont (372)	A proportionately higher number of route closures occurred in those areas characterized by "bajada" topography, limiting travel in this type of landscape. A proportionately higher number of routes were kept open in the more mountainous terrain of the northern portions of this sub region, including Gravel Hills, Hamburger Mill, and Fremont Peak Area.	Proportionately higher rates of route closures in high tortoise density areas in El Mirage, Kramer, and Superior sub regions should shift more activity to the more mountainous, historically popular northern portions of this sub region, e.g. Gravel Hills, Hamburger Mill.	Route designations considered historic recreation patterns and sensitive species concerns (particularly desert tortoise). The route system designated under this alternative both more accurately reflects and addresses both the access needs and environmental concerns of the entire planning area.

SUB REGION (MILES OPEN)	DIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY	INDIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY:	NOTES
Juniper (152)	Subregion is relatively small, with a viable route network serving recreational opportunity.	Subregion serves as a staging area for visitors from the Apple Valley wanting to recreate in the San Bernardino Mountains. One route of access would be through the Grapevine Canyon Area of this subregion into the Coyote Flat area of the San Bernardino National Forest, while another would be from the Juniper Flats area in the subregion into the Deep Creek area of the San Bernardino National Forest via the Pack Trail.	Good equestrian access from the Apple Valley to the San Bernardino National Forest through the Grapevine Canyon area, as well as into the Deep Creek area via the Pack Trail.
Kramer (362)	A proportionately higher number of routes were closed in the flatter areas of Kramer where tortoise concerns were greatest, whereas in the historically more actively visited areas (e.g. Kramer Hills for rock-hounding and Iron Mountains for family camping) a proportionately higher number of routes were left open.	The large closure rate in southern Kramer will reduce the impacts from the Silver Lakes urban area and should allow for the continued existence of high tortoise densities in this area. In a like manner, the high route closure rate in the central and center-north portions of this sub region should facilitate the continued existence of healthy tortoise populations in this area.	Many of the routes crossing this sub region were created by race events in the 60's and 70's. Those events have since been shifted to the "Open Areas" designated for that purpose. Those routes and the Kramer subregion as a whole are not as popular as other areas for motorcycle use. Also because most of the sub region is comparative flat relative to other sub regions, it offers less interest for vehicle recreation. These factors make it conducive to emphasizing route designation that is more focused toward tortoise protection.
Middle Knob (88)	The low-density route network in this sub region is planned for low closure and therefore a viable route network will continue and will provide access to mines, and for the servicing of utility corridors.	Low to moderate indirect impacts because of low level of route closure.	This area could have a special recreation demand because it offers recreational opportunity at higher elevations, such as in the Chuckwalla Mountains, which is over 5,000 feet, and Middle Knob peak at 6,000 feet.
Newberry – Rodman (171)	Benefits from direct access from Interstate 40, which provides access to Newberry Mountains Wilderness, Rodman Mountains Wilderness, and the Johnson Valley OHV Area to the south.	Subregion is an access point to other areas of interest either within the subregion or surrounding it. Access would continue to be provided for touring, rock hounding, and visiting mining sites (such as Silver Cliffs Mine, Bell Mine, and Camp Rock Mine).	The subregion is bordered on the southeast by the Marine Corps Air Ground Combat Center.

SUB REGION (MILES OPEN)	DIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY	INDIRECT IMPACTS OF ROUTE DESIGNATIONS ON ACCESS OPPORTUNITY:	NOTES
Red Mountain (362)	The rugged northern portions this sub region near 395 have a very high density of mine claims. In order to maintain this access need, relatively more routes were designated open in this area. In the flatter southern and eastern portions of this sub region tortoise concerns led to proportionately more route closures.	The greater closures in the eastern and southern portions of Red Mountain also will afford greater protections to the tortoise, but will hinder recreational opportunities. Recreational activity will therefore shift to the more mountainous areas of this and the Fremont sub regions where more recreational opportunity was maintained.	Route designation in this sub region like others that were located within desert tortoise DWMAs emphasized encouraging recreational opportunities in the more mountainous regions north of Twenty Mule Team Road by opening a more extensive network in those areas. On the other hand tortoise protection was facilitated by leaving relatively fewer routes open in the flatter bajadas terrain.
Superior (417)	The relatively high number of route closures in those areas known for high tortoise concerns will reduce a variety of recreational opportunities in those areas. Many routes are closed in areas of low recreation interest and where sensitive areas occur such as the Rainbow Basin ACEC. Fewer closures in high value recreation areas.	The high level of route closures in those areas known for desert tortoise or Lane Mountain milk vetch should afford these species additional protection from a variety of vehicle-related impacts. The closures associated will also shift recreational use away from these generally flatter areas to areas where more recreational opportunities are facilitated by a denser open route network.	This largest of sub regions had both a diversity of recreational interests, as well as environmental concerns. The Superior Sub Region has a lot of flat area offering lower recreation value and greater habitat value for the tortoise. Therefore a high level of closures help the tortoise without significant impact to access opportunity

Most of the recreational needs and opportunities identified by the public take place in the more mountainous terrain of the planning area, such as the Gravel Hills in the Fremont subregion and the more mountainous areas of the Red Mountain subregion, while many of the more sensitive desert tortoise areas are located on the bajadas and in washes. The proposed network would take account of this by leaving relatively more routes open in the more mountainous terrain (e.g. Kramer Hills, Iron Mountain, Gravel Hills, Hamburger Mill, Red Mountain, the Superior sub region hills north and east of Rainbow Basin), and impose relatively more closure in the flatter (e.g. characterized by bajadas and washes) surrounding areas (e.g. in portions of the El Mirage, Kramer, Fremont, Red Mountain, and Superior subregions). The network would address other sensitive species concerns (which included many immobile plants) by avoidance.

Because the designated open route system is less than the entire inventoried network (including non-designated "volunteer or legacy" routes), visitor use on the designated routes would increase. Visitors would still be able to experience solitude in a number of natural areas due to the size of the area and the extensive open route network that would be provided. Examples of where this solitude can still be experienced occur in the wide open expanses of the Superior sub region.

The proposed network provides for relatively undiminished camping opportunities throughout the planning area. Campsites in the Iron Mountains, Kramer Hills, Gravel Hills, Hamburger Mill, the Pinnacles, and around Rainbow Basin, as well as a number of other areas would still be largely accessible to the public. The staging areas and trailheads associated with many of these campsites would remain available for equestrian endurance rides, rock hounding, hiking, birding and hunting.

Abundant opportunities for both dual-sport motorcycle and 4WD touring still exist throughout the planning region. The network provides connectivity of routes by route type, such as single-track or two-track, enabling long touring routes to be created that would allow enabling visitors to travel over large areas. These recreational routes traverse a variety of landscapes. Thus, a visitor, whether on a dual sport motorcycle or SUV, may engage in multi-hour (e.g. through the Kramer Hills or up Mesquite Canyon through the Bonanza Gulch of the El Pasos) to multi-day tours (e.g. dual sport motorcycle rides starting in the El Mirage sub region and ending in the Ridgecrest sub region or SUV tours traveling along the many old historic roads that lace the planning area, such as the Mojave Road, the Spanish Trail, and Isham Road. Many of these historic roads are noteworthy for the distance and variety of terrain that they allow the experienced desert visitor to travel.

More challenging or more technical routes were also left in place wherever possible. Generally these were located in the more mountainous terrain, such as the Gravel Hills of the Fremont sub region or the Iron Mountains of the Kramer sub region. A greater number of routes tended to be left open in the more mountainous terrain, while more were closed in the bajadas and washes.

The needs of specific recreational interest groups would be met. These include:

- *Rock hounds and gem collectors.* Access to a number of sites and destination areas identified as important during the planning process was retained. Some of these sites included spots in the Newberry-Rodman sub region, the Kramer Hills and a number of dispersed sites in the Superior sub region.

- *Equestrians, including endurance race riders*. Access to staging areas is provided, and motorized routes that parallel equestrian endurance courses were, in many cases, retained as open routes. For example routes paralleling the Grass Valley and Golden Wilderness Areas often serve equestrians entering these wildernesses. This factor weighed prominently in keeping some of these routes open.

- *Upland game hunters*. Routes that would enable volunteers (such as Quail Unlimited) and CDFG to maintain guzzlers were retained, as were other routes that served to access hunting areas that are only utilized during the fall hunting season. In particular a number of specific sites and their associated routes were identified in the Red Mountain sub regions.

- *Informal and formal historic sightseeing societies*. Access to many old routes, mining sites, and homesteads that are of special interest to these organizations was retained. This is

important because guidebooks, maps and magazine articles publicize these sites, making them popular destinations.

The route network would also meet commercial access needs, including access to the following:

- Utility easements such as electrical transmission lines, communication towers (both public and military) and underground communication lines, pipeline corridors, support facilities, support and maintenance roads;

- Ranching facilities including outbuildings, corrals, water tanks, wells, and service roads; and,

- Mining facilities including tunnels, pits, buildings, claim stakes, and service roads.

Private property access would be provided to each known privately held parcel. Factors that were taken into consideration in determining the appropriate access route were the size and remoteness of the parcel, proximity to other areas of development and/or occupancy, topographic features (e.g. canyons or ridgelines) that might bisect the property and thereby necessitate two or points of access and safety issues. In one area, Homewood Canyon, known occupied parcels were afforded more than one point of access due to the risk of flash floods.

The proposed route network would have few unmet access needs. Although some areas, particularly those identified as having higher than average tortoise densities, may have substantially fewer routes than other areas, those routes that do remain open would provide access to meet inventoried needs. In some areas, however, access needs (primarily recreational) would be constrained due to resource needs. These would include portions of the following subregions:

- The El Mirage subregion may lack motorcycle and vehicular touring opportunities in the bajadas north of the Shadow Mountain complex.

- The Kramer subregion, both west and northwest of Silver Lakes, may not meet demands for general motorcycle recreation and touring.

- The Red Mountain subregion west of Cuddeback Lake, where demands for general motorcycle, vehicle touring and camping opportunities would not be fully provided.

These shortfalls in recreational access would be compensated by available access for similar forms of recreation elsewhere. Vehicular and motorcycle touring opportunities would be abundant in many other sub regions where the resource issues are not such a major concern. Off highway vehicle open areas, moreover, would help absorb displaced demand for general motorcycle use.

Most of the Backcountry Discovery Trail System would be designated open. In those cases where certain BDTS routes were recommended for closure due to resource concerns, alternative open

routes are available to maintain the continuity of BDTS.

The proposed network generally avoids dry lakebeds (such as Harper Dry Lake in south Fremont, Superior Dry Lake and Coyote Dry Lake). Routes would remain open on or around each dry lakebed only where necessary for efficient travel management, where necessary to meet a specific need of the area such as resource protection or public safety. No change is anticipated in the management of the Sunfair Dry Lake area. BLM manages only three-fourths of a section in this area. The vast majority of the area currently used for OHV use is held either privately or by San Bernardino County. San Bernardino County once planned on an OHV recreation facility at this area, but eventually abandoned these plans because of the cost associated with the management of such a site. Although recreational OHV visitor use has continued, there have not been any serious issues identified by either the county or BLM.

4.2.5 Cultural Resources

4.2.5.1 Activities That Would Affect Cultural Resources

Activities proposed in Alternative A that may affect cultural resources include the following listed actions.

- Implementing actions for Conservation Areas and new, non-cultural resource ACECs within DWMAs, such as construction of fences or culverts, placement of signs and kiosks, rehabilitation and restoration of routes or larger areas, removal of structures and debris if 50 years old or older;

- Multiple use class changes that increase or decrease protection of cultural resources, depending upon the nature of the change (generally, L to M decreases protection of cultural resources, e.g., and vice versa);

- Land exchanges that result in removal of significant cultural resources from protective federal management;

- Designation of routes of travel as open to vehicle use if those routes occur on or near cultural resources; and

- Decisions to continue use of existing designated routes that are located inside, near, or in the vicinity of cultural resources.

For many of these activities, significance of effect would be evaluated when specific actions are proposed and their locations are known. Specific actions would be subject to full compliance with cultural resource statues and regulations, and managers must not approve proposed activities until compliance with Section 106 of the National Historic Preservation Act has been completed and

documented, including consultation with the State Historic Preservation Officer and federally recognized Indian tribes.

The effect of routes of travel on cultural resources has not been fully determined because information needed to assess effect is incomplete at the present time; however, records and observation indicate the effect on some sites is significant. Route designation would be reviewed under the Section 106 process, and a programmatic approach to Section 106 compliance for routes of travel within this planning area is being discussed with the California State Office of Historic Preservation.

4.2.5.2 Regional Analysis: Potential Areas of Conflict

Christmas Canyon ACEC: The 1985-87 route designations would be adopted for the portion of this ACEC outside the Spangler Hills Open Area. The effects of this designation process have not been determined and have not been subject to Section 106 consultation. Under Section 106 of the National Historic Preservation Act, effects of an action and proposed mitigation must be subject to consultation with the State Office of Historic Preservation prior to making a decision. Current on-going inventory within this ACEC has resulted in recordation of approximately 100 previously unknown archaeological sites and has identified the presence of an extremely significant complex of sites in the ACEC and in adjacent areas. Analysis of materials from these sites places them amongst the oldest known sites in the California Desert and throughout the United States. Route designation decisions here should fully consider impacts to or opportunities to protect these very important and very fragile cultural resources.

J**awbone/Butterbredt ACEC:** Routes within this ACEC have only recently been subject to partial Section 106 consultation. Inventory occurring now has resulted in recordation of more than 100 previously unknown sites within the ACEC and open areas contained within the ACEC. This data, still being processed, is likely to affect any existing designated route system. Sites within the ACEC are currently being affected by the designated route system, including the Dove Spring site (2.5 feet of artifact-bearing midden soil at the junction of three open routes). Several other significant sites are known to be suffering impacts from designated routes.

Last Chance Canyon ACEC: The effects of the 1985-87 designated route system on cultural resources have not been determined because route inventories for cultural resources have not yet been carried out. This area has extremely high site densities and is part of the Last Chance Canyon National Register District. The decision to adopt this route system has not been subject to Section 106 requirements. The decision to retain existing route designation in this area would continue existing effects for an unidentified length of time.

Kelso Creek Monkeyflower Conservation Area: Fencing private/BLM property lines for the Kelso Creek Monkeyflower Conservation Area has very high potential for disturbance of significant sites in the Kelso Creek drainage. Until exact locations of fences are proposed the full impact cannot be identified. This and other such actions would require compliance with Section 106 of the National

Historic Preservation Act.

Restoration Activities: Restoration activities such as that proposed for habitat of Kern buckwheat may also cause impacts to cultural resources. Data are lacking for the area but prehistoric site densities are high on Middle Knob so the potential for cultural resources to occur in areas needing rehabilitation is high. Since these areas are already disturbed it is to be assumed that cultural resources here would also be in disturbed condition but how seriously cannot be predicted. Project specific actions would be subject to compliance with Section 106 of the National Historic Preservation Act.

Inyo County Land Reclassification: Changing the multiple use class on 6,400 acres of land in Inyo County to unclassified for immediate disposal would also require compliance with Section 106 of the National Historic Preservation Act. If significant sites (i.e. sites that meet eligibility criteria for listing in the National Register of Historic Places) were found to be present, it would be necessary to consider retaining the parcels permanently in federal management for protection and preservation of the sites. Transfer of title of such a parcel out of protected status would require mitigation of effects and data recovery before the land is transferred. Other actions that have the potential to affect cultural resources and that would have to be evaluated under Section 106 of the National Historic Preservation Act include eliminating mine pits, trash dumps, and other existing conditions (if old enough to be historic, or if they are located on top of or adjacent to cultural resources), soil scarification, etc.

Wildlife Water Sources: A decision to leave existing artificial water sources in place and to continue to allow access to these facilities for maintenance would result in continuing impacts to some prehistoric sites. A number of guzzlers within the planning area have been built into significant prehistoric sites, including sites in the Last Chance Canyon National Register District and Red Mountain Spring National Register District. Recognition of on-going impacts to significant sites requires that efforts be made to reduce or eliminate the impacts under Section 110 of the National Historic Preservation Act. A decision to leave them there and continue their use and maintenance, rather than moving the activity elsewhere, would require mitigation of effects to the cultural properties being affected.

4.2.5.3 Off Road Vehicle Route Designation

Route designation has the greatest potential to both impact and protect significant cultural resources, depending upon the criteria used to designate routes as open or closed. A study of impacts to cultural resources in the California Desert that was done in concert with preparation of the CDCA Plan identified the combined effects of vehicle routes and activities in and on archaeological sites and vandalism resulting from increased levels of access as OHV use became more popular as the greatest impact and greatest threat to cultural resources in the California Desert (Lyneis *et al*. 1980). This study referenced similar studies in other states that reached the same conclusions. Vehicle routes across or near archaeological sites affect those sites in various ways, depending upon the nature of the archaeological materials, the nature of the soils at the site and in the immediate vicinity, and the

topography of the immediate area. Softer soils, and especially "midden" soils[9], are easily displaced by vehicle tires along with artifacts or other cultural materials that may be in the route. Artifacts and the soil matrix in which they exist may be displaced both horizontally and vertically as vehicle tires move through the soil. Artifacts such as projectile points, flakes, beads, pottery and other thin items of stone, bone, shell, etc. may be broken or crushed by the weight of vehicles passing over them. Under some conditions, larger stone objects such as manos and metates may be cracked and broken by vehicles. Subsurface features such as hearths or burials may be exposed either directly by vehicle use on the road, or indirectly by erosion channels created by vehicle use. Erosion of routes may affect sites that are off the route but downstream in the erosion channel. Vehicles passing each other or going wide to avoid ruts may gradually widen a route so that it cuts deeper into the portions of sites along the sides of routes. Routes through historic sites may also displace or damage artifacts in the road or immediately adjacent to the route. Effects may occur from the actions, both deliberate and inadvertent, of the occupants or operators of the vehicles, such as collection of artifacts or erosion as a result of the use of the route. Similar effects can also occur to cultural resources that fall within the 600-foot wide (300 feet on either side of the centerline) corridor along routes in which parking, camping, pulling off, etc. are allowed.

4.2.5.3.1 Effects Of Networks: Ridgecrest Field Office

Assumptions and Methods: Within the Ridgecrest Field Office Area, no cultural resources field inventory has been carried out on the proposed 2002 route designation updates. Assessment of effects is based upon data available in a GIS database system. This data includes the 1985-87 route designation system for all of the sub-regions subject to route designation and 2002 updates for Middle Knob and Red Mountain sub-regions. The database also includes static data from the California Historical Resources Information System generated over a year ago. New inventory and archaeological site data are not included in the database. Information in the database includes recorded prehistoric and historic site locations and areas that have been subject to cultural resources inventory. The accuracy of the following analysis is directly proportional to the accuracy of the digitized data available. Since this data has been collected over time from various sources and no field checking has been done, the accuracy is unknown. For purposes of analysis it is assumed that data in the GIS database accurately represents the locations of cultural resources and the locations of vehicle routes under consideration. The actual degree of accuracy/error is unknown. Since levels of archaeological inventory for the planning area in general are very low, 1% to 2% in most areas, the predictive value of the archaeological data is low as well. For purposes of analysis, the width of routes was arbitrarily set at 10 feet on either side of the centerline, the centerline being the line in the GIS database that represented each particular route. This would, of course, be too narrow in some instances and too wide in others. Also for purposes of analysis, effects or potential effects of the 600-foot corridor (300 feet on each side) were analyzed. In some areas this corridor would be narrowed under actions proposed in this alternative. Finally, time constraints did not allow for determining whether or not all of the sites in the database are still in place. Some may have been subject to mitigation as a result of actions that have occurred since

9 "Midden" is a term used for the highly organic soils that form on some prehistoric habitation sites as a result of long-term or intense occupation of the site location.

the sites were first recorded; however, it is unlikely that the bulk of the sites have been evaluated for significance or subject to any data recovery.

The impact to cultural resources within the Barstow Field Office Area by the route network proposed in Alternative A was evaluated using 7.5 minute quadrangle maps and overlays. GIS route data was not available; therefore, due to time constraints, analysis was restricted to proposed open routes.

Sub-regions selected for route designation updates in the Ridgecrest Field Office area include Red Mountain, Middle Knob, Fremont, Ridgecrest and El Paso. Updated route networks were available for analysis of Red Mountain and Middle Knob. The other sub-regions would continue with the 1985-87 or other previous route designations, either permanently or (in the case of Ridgecrest and El Paso) until the completion of the El Paso Collaborative Access Planning Area process.

Red Mountain Subregion: In the Red Mountain sub-region three recorded sites are directly bisected by routes contained within the 2002 digitized route system. One of these routes, RM-1184, would be closed under the proposed 2002 route designation system. The site on this route was recorded in 1976 as a small milling station, with no more recent data available. Although this particular route is proposed for closure, use of the route may have already affected the site.

Three routes proposed for open designation intersect inside the Blackwater Well National Register District and inside the boundaries of the primary prehistoric habitation site (first recorded in the 1930s) that is the focal point of the National Register district. Use of the sites within the district "extended from about 1200 B.C or earlier to possibly as late as A.D. 1820. The main village itself, designated CA-SBR-2322, has been described as 'one of the richest archaeological sites in the California desert' (Hickson 1978:7)" (Blackwater Well National Register Nomination Form). The site is about three acres in size and about one meter deep. The three routes, which intersect on top of the village site, have caused considerable damage to the site; continued use of the routes would result in continued deterioration of the site. Since the primary goal in National Register districts is preservation of significant cultural resources, avoidance of impacts by closing the routes would be the most appropriate option. If the routes were designated open, mitigation of effects in the form of scientific data recovery and analysis would be required under Section 106 of the National Historic Preservation Act. Continued degradation of the site and scientific data recovery may both have impacts on Native American values attached to the site. Loss of the site would preclude on-site public interpretation/education opportunities. One of the same three routes intersects a second site inside the National Register district, SBr-10278, a milling station described as in fair condition when recorded in 1978. The artifacts recorded on the surface are all small and lightweight enough to be easily damaged or scattered by vehicle use of the road through the site. Several other archaeological sites within the National Register district may be close enough to proposed open routes to fall within the proposed 100-foot corridor (50 feet on either side of the centerline inside a DWMA) in which camping, parking, etc. are allowed. Sites within the district may well also fall within "existing disturbed areas" along routes in which camping and parking would be allowed under Alternative A. Field inventory would be

required to determine how many sites within the district would be subject to impact under Alternative A. Almost all of the known sites within the district have fallen within the existing 600-foot corridor along routes for camping, stopping and parking, so all of the sites within the district have already been impacted to some degree by the existing route network. Because effects to cultural resources from vehicle access can occur beyond established vehicle corridors, route designation within the National Register district should be re-evaluated, taking into consideration the effects of travel, vehicle use, and related activities on archaeological properties inside the district.

The GIS database indicates an additional 22 archaeological sites that fall within the existing 600-foot corridor allowed for camping, parking and stoping. These sites include temporary campsites, roasting pits, milling (food processing) sites, petroglyphs, and habitation sites. Some are within the Red Mountain Spring ACEC and the partially over-lapping National Register district. These sites have already been impacted by vehicle activity along the routes. Seventeen of these sites are along routes proposed for open designation under the current plan, including RM2018, RM2001, RM2036, RM2034 (three sites along this route), RM2051, RM4001, RM3021, RM2017, RM2020, RM2018, RM2051, and RM2129. Reduction of the corridor width to 100 feet (50 feet on either side of the centerline) may decrease the number of known sites within corridors of vehicle use but even sites that are no longer within the corridors would have already suffered some degree of damage. Time constraints did not allow for full analysis of how changing the corridor width would affect impacts to cultural resources. The actual number of sites that have been affected and would be affected by the route network system is unknown due to the very low level of inventory in the area and due to the fact that impacts from vehicle access can extend beyond the allowed vehicle corridor.

In the absence of valid levels of inventory a certain amount of prediction regarding archaeological site densities in the Red Mountain sub-region and consequent levels of impact to cultural resources within vehicle corridors can be made using cultural resource sensitivity polygons based upon inventory for the CDCA Plan. These sensitivity polygons identify areas in which the potential for significant cultural resources is considered to be high or very high in relationship to surrounding areas. Documentation justifying a determination of high or very high sensitivity was based upon such factors as number of recorded sites, types of sites, diversity of sites within an area, uniqueness/rarity of known sites, scientific value, aesthetic value, integrity of known sites and their surroundings, socio-cultural and Native American concerns, and similar values. Predictive site densities for the Red Mountain planning unit run around 4.5 sites per square mile. Inside the sensitivity polygons site densities are expected to be higher than this average. Approximately 270 miles of route and 10,118 acres of route corridor fall inside the high/very high sensitivity polygons. It is expected that some degree of impact has occurred to cultural resources within these areas. Of these routes, 162 miles would be designated as open under this alternative. The 600-foot route corridor would amount to 7,791 acres. This alternative would reduce levels of impact to resources on approximately 3,000 acres if the route corridors stayed at 600 feet. Since the route corridors would drop to 100 feet inside DWMAs impacts to cultural resources may be reduced further. Currently available data does not allow for finer definition of impact over the sub-region as a whole.

Middle Knob Subregion: Five routes proposed for open designation, MK0010, MK0013, MK0014, MK0016, and MK0019, intersect recorded archaeological sites. MK0010 intersects 12 recorded sites, MK0013 two recorded sites, and the other three routes intersect one recorded site each. Site types intersected by these routes include a series of prehistoric lithic scatters at which stone was quarried and worked into tools. Some of these sites are very large and were observed to contain formed tools as well as scatters of flakes and cores that are the detritus of making stone tools. One stretches for 400 meters along a route. Some contain evidence of use as temporary campsites for collection of resources other than tool stone. One site is a historic site containing segments of historic routes, structures, and debris scatters that date from 1848 to the present. Many of the site records note vehicle damage. An additional 5 sites are recorded within 600-foot corridors along proposed open routes. A short route segment that is proposed for closure bisects one additional site, a lithic scatter that covers over 5000 square meters. The site record indicates some damage has already occurred to the site.

For predictive purposes, approximately 15 miles of route (approximately 3,000 acres of route corridor) that is proposed for open designation fall within areas that have been determined to be of high or very high sensitivity for cultural resources as a result of the CDCA Plan inventory. Given the number of known sites in the sub-region and the low level of inventory it is likely that many more sites would be found along existing routes.

East Sierra, Fremont, North Searles and South Searles Subregions: These four sub-regions would retain existing route designations. A number of open routes within these sub-regions cross significant archaeological sites and are causing damage, sometimes severe, to the resources. The GIS database shows 15 sites that are bisected by open routes. These sites include eight large permanent or semi-permanent prehistoric occupation sites (villages) that are characterized by the presence of flaked stone tools, milling tools, fire-affected rock, hearths, and in some cases, house depressions and pottery sherds, and midden to a depth of more than 100 centimeters. Although none of these sites have been formally evaluated it is likely that all would be found eligible for listing in the National Register of Historic Places. Some of these sites are crossed by several routes and all of the site records indicate damage, usually severe. These sites occur in Ninemile Canyon, Gparevine Canyon, Sand Canyon, Indian Wells Canyon, Freeman Canyon, and the Little Lake area. It is highly likely that other such sites exist in these same canyons or other canyons on the Eastern Sierra front. Recent inventory of the Los Angeles Aqueduct and transmission line (in process) resulted in recordation of over 300 sites that have not yet been entered into the currently available database.

Recent inventory in the Searles Lake area has resulted in location of approximately 100 previously recorded sites, all prehistoric, but the data is still in preparation and is not available for current analysis. It does indicate the potential for very high site densities around Searles Lake.

Thirty-four sites fall within the 600-foot corridor open to parking and camping. This number includes those already listed as bisected by the routes. Many of the routes in use today follow historic routes and the impact to the historic routes has not often been formally assessed. In many cases the

historic routes have been obliterated by later use. About 100 miles of linear cultural resources (out of a total of 571 miles of linear cultural resources within the sub-region) match currently open routes.

Within the sub-regions, 36,013 acres within the four sub-regions have been identified as having high or very high sensitivity for cultural resources. Within these areas there are 284.3 miles of open route and 8908.54 acres of route corridor. Most of these routes have not been inventoried for cultural resources. Site densities from the California Desert Conservation Area Plan inventory averaged around 4.5 sites per square mile but are higher in some areas.

California Back Country Discovery Trail: Although routes identified for inclusion in the CBCDT have been incorporated into the West Mojave Plan, cultural resources inventory has not been carried out on the CBCDT as a whole within the Ridgecrest Field Office Area. Impacts from this trail cannot be assessed until the inventory has been conducted.

El Paso and Ridgecrest Subregions: Retention of the existing 1985-87 designations until completion of the El Paso Collaborative Access Planning Area process would continue existing impacts, in some cases severe, to properties listed in the National Register of Historic Places. The El Paso Mountains contain a 110-square-mile National Register district, the first listed National Register district in the California Desert, and a cultural resource ACEC.

The currently available GIS data shows five recorded National Register properties in the El Paso Mountains that are bisected by existing open routes of travel. These sites occur on routes EP-0155, 7101, 5146, 5151, 6231, 0238, 0421, 0471, and 0469. Some of the sites are bisected by or adjacent to more than one route. The five sites include a stone workshop/quarry with flakes, formed tools and groundstone; a temporary habitation/quarry/workshop with flakes, formed tools, millingstones, hearths, and a rock ring which is a possible dwelling foundation; a "large temporary campsite with pockets of midden exposed in the road", fire-affected rock (hearths), lithic scatter, and groundstone that is over 5000 meters square; and a temporary campsite with bedrock milling slicks, lithic scatter, and petroglyphs. One of these sites also contains historic mining materials. Most of the records for these sites indicate that presence of the route has caused damage to the site. Two additional sites containing midden, flake scatters, groundstone, and rock rings have recently been recorded inside the boundaries of the National Register district but have not been added to the GIS database. Existing open routes bisect both of these sites. At one of these sites erosion from vehicle tracks in the road is causing loss of soil and artifacts from the site. Routes, including EP-0226, 2143, and 4144, bisect several recorded sites in the vicinity of Sheep Spring, including two habitation sites with midden soils. The combination of high site densities and low inventory levels indicates that there are probably many more unrecorded sites that are bisected by routes.

GIS analysis identified 43 recorded archaeological sites that lie within the 600-foot corridor along open routes in which vehicle parking, camping, etc. are allowed. Nearly all of these sites are within the boundaries of the National Register district. Site densities from the CDCA Plan inventory averaged around four sites per square mile but are probably much higher in some areas and may be

much higher in general throughout the El Paso Mountains. One sensitivity polygon contains 143 recorded sites. One hundred eighty-six open routes fall partially or completely inside high and very high sensitivity polygons, which are primarily within the National Register district. Most of these routes have not been inventoried for cultural resources. There are 247.6 miles of open route and 10,808 acres of open route corridor inside high/very high cultural resource sensitivity polygons, almost all of which are inside the National Register district. There are 440.8 miles of open route in the El Paso sub-region. This means that of the 31,156.98 total acres within the El Paso sub-region, 24,157.1 acres fall within 300 feet of an open route and are therefore subject to impacts from use of open routes and adjacent areas. These figures make it highly probable that a great deal more damage is occurring to National Register properties than has been formally identified. The above analysis does not include effects to archaeological resources from vandalism, artifact theft, and other types of activities that tend to occur along vehicle access corridors but these activities have been a continual problem in the El Paso Mountains for decades.

4.2.5.3.2 Effects Of Networks: Barstow Field Office

The Barstow Field Office area includes nine subregions for route designation. Table U-1 in Appendix U lists the cultural resources potentially affected by proposed open routes. The following discussion summarizes those effects.

Afton Subregion: In the Afton Sub-region, nine routes intersect with several habitation sites, a village site, and the Mojave Road (SBR3033H/CHL963) a historic landmark.

Coyote Subregion: Approximately 84 routes intersect historic and prehistoric resources in this sub-region. Multiple lithic scatters, lithic reduction sites, stone alignments, road, lithic quarries, rock shelters (SBR7185, SBR2167), and habitation/cremations sites are present. There are also four significant sites, either historic landmarks or eligible for the National Register of Historic Places. These include the Mormon Trail (CHL577/SBR4411H), Boulder Transmission line (NRHP-E-SBR7694H), Borate-Calico Hills (CPHI-SBR54), and the Hoover Dam to Los Angeles transmission lines (NRHP-E-PSBR38H).

Bighorn Subregion: Three springs, rock art, pottery, habitation sites, and lithics characterize the cultural resources in this sub-region. Terrace Springs (SBR4038), Rattlesnake Spring (SBR4039), and a village near Old Woman Spring (SBR25) have open routes leading directly to them, and disturbance of cultural remains has occurred. Further degradation is likely should these route remain open. Sixteen routes intersect cultural resources in this region.

Granite Subregion: This sub-region contains various lithic scatters, lithic reduction sites, and trails. The most currently significant trail is the Mormon Trail (CHL577/SBR4411H). Additionally, the Boulder Dam to Los Angeles Power lines (NRHP-E-SBR7694H), a National Register eligible property, are found in this area. Twelve open routes intersect, or run parallel to, cultural resources in the sub-region.

Juniper Subregion: Bureau of Land Management records indicate that no known cultural resources are directly impacted by open routes of Alternative A.

Newberry-Rodman Subregion: Twenty-two routes were found to intersect or parallel a variety of cultural resources. Impacted sites include the Boulder Transmission lines 1, 2, 3 (SBR7694H), rock shelters, rock art, lithic quarries, mining sites, and historic graffiti.

Ord Subregion: There are rock art sites, lithic scatters, habitation sites, and historic graffiti located within this sub-region. Alternative A route maps show seven routes that intersect these cultural resources.

Sleeping Beauty Subregion: Three National Register eligible properties are found in the Sleeping Beauty sub-region, the Mojave Road (SBR3033H/CHL963), the Hoover Dam to Los Angeles transmission lines (NRHP-E-PSBR38H), and the ATS&F Railroad (NRHP-E-SBR6693H). Other cultural resources in this area include village sites, road, railroad grades, lithic quarries, and rock shelters. Thirty-one routes intersect these prehistoric and historic resources.

Superior Subregion: Approximately sixty-six Alternative A routes intersect a variety of rock art sites, lithic reduction, scatter, and quarry sites, historic mining sites, camps, and an airplane crash site (SBR800H). Several National Register eligible properties are located here, including the Goldstone Historic Mining District (NRHP-E-[80-5]), a lithic scatter/town site (NRHP-E-SBR4347/H), and a historic power transmission line (NRHP-E-PSBR39H).

Implementation of Route Network: Rehabilitation/reclamation of routes that are designated closed and maintenance of routes that are designated open would affect archaeological resources along those routes and should not be undertaken until cultural resources inventories and evaluations have taken place

4.2.6 Mojave River Wild and Scenic River Eligibility Determination

Determination of eligibility for portions of the Mojave River to be designated as a Recreational River under the Wild and Scenic Rivers legislation would have no adverse environmental impact and is insignificant under CEQA. The eligibility would not alter any existing land use or recreational activities on public lands where it applies. The ultimate designation would require that future BLM projects in the river reach between Manix and Basin Road, including Afton Canyon, be compatible with provisions of the law. Inclusion in the National Wild and Scenic Rivers System requires Congressional action, accompanied by additional environmental review.

4.2.7 Cumulative Impacts

Air Quality: There could be a slight increase in particulate emissions from private lands, and

reductions in emissions of particulate matter from public lands. This would result in corresponding declines in PM_{10} concentrations in a number of areas. On an overall plan basis, there would be a significant reduction in particulate emissions. A goal of Alternative A is to streamline procedures for development on private lands. This could result in an increased development rate in the short term. In the long term, other factors would control development and expected emissions from development would be nearly the same with or without Alternative A. Long term projected growth and emission increases would occur in and around current core population centers such as the Antelope Valley, the Victor Valley area and Barstow. Reductions would occur on BLM lands away from population centers.

Biological Resources: The West Mojave Plan was initiated as a species protection plan under Section 10(a) of the FESA and Section 2081 of the CESA. However, Alternatives A, B, C, D and E set a framework for the local jurisdictions to adopt the West Mojave Plan as a Natural Community Conservation Plan (NCCP). Alternative E does not provide sufficient conservation to allow approval as a NCCP, and Alternatives F and G have a different approach, not based on land conservation, that does not conceptually match the goals of an NCCP. Depending on the alternative or combination of measures from each alternative chosen by the BLM, the local jurisdictions could adjust the framework conservation measures accordingly to create a NCCP. With an NCCP, incidental take permits can be issued based on conservation in the plan as a whole under Section 2835 of CESA, rather than based on species-specific conservation measures and mitigating measures as under Section 2081.

Alternatives A through E vary in the amount of new conservation within DWMAs, ACECs, and Conservation Areas from 1.20 million acres (19.8% of the total for natural communities) to 1.79 million acres (29.4%) in Alternative C. These new conservation areas add to the existing 1.15 million acres (18.4%) and achieve much greater protection of desert tortoise habitat. For the primary communities of this habitat, creosote bush scrub and saltbush scrub, the increase in habitat conservation is 23-34%. The proportional increase is similar for the Mohave ground squirrel.

In addition to increasing the quantity of habitat conserved, the Plan focuses on protecting the highest quality tortoise and ground squirrel habitat, as defined by highest sign counts and live tortoises and persistent capture locations for the Mohave ground squirrel. The alternatives incorporating private land conservation (A, C, D, E) create large habitat blocks capable of sustaining ecosystem processes, landform diversity, all trophic levels and populations large enough to be viable in the face of fluctuations caused by the extreme desert environment. For the desert tortoise, maintenance of conserved habitat with a high carrying capacity is necessary for recovery after the disease runs its course or a cure is found, and after raven predation is reduced.

The Plan presents significant cumulative impacts, both positive and negative to most of the covered species. The beneficial cumulative impacts include the establishment of large, unfragmented habitat blocks, measures to reduce tortoise mortality, measures to minimize disturbance impacts to conserved lands and measures addressing unique components of diversity, such as endemic species,

disjuncts and habitat specialists. The provision of incidental take areas where permitting is streamlined accommodates development of large acreages of habitat. The developed lands put increasing pressure on the conserved lands, from resource extraction, incidental land uses such as utilities and from recreation. The allowable loss of habitat exceeds conservation in all alternatives. Cumulatively this loss would reduce populations of many species in a very substantial way. As long as the targeted species, which are the rarest and those with known declines, are adequately conserved in the Habitat Conservation Area, the cumulative impact would not be significant or adverse. The more common species would survive within the HCA and are present in abundance outside the west Mojave as well.

Although large acreages are available as incidental take areas, not all of these lands would be developed or even disturbed during the term of the Plan. The growth projections for urban development can be accommodated on a small fraction of the land outside the HCA. Many areas without water, utilities, or easy access would remain undeveloped, even from rural residences. The monitoring and adaptive management aspects of the Plan would track the success of the conservation measures, and these undeveloped lands would remain available if alterations are needed in the quantity of conserved lands in the future. They are also available for future recreation areas and for developments such as mining or energy production that can be pursued in remote areas. The allocation of lands for different uses achieved by the West Mojave Plan should not be considered as the final determination of land use for the planning area. It is rather a dynamic process of utilizing the best available science and land use planning to achieve conservation of the species and communities known to be in jeopardy. Technologies of the future can and are expected to alter provisions of the Plan to improve upon the implementation of its objectives.

Overall, however, ACEC management of tortoise DWMAs would constitute a significant beneficial impact relative to BLM management under the current habitat classification. It would augment and refine protection ostensibly provided by the critical habitat designation. ACEC prescriptions would serve as specified management actions that are much more protective than class guidelines given in the CDCA Plan. Specified prescriptions would strengthen protection in places where the BLM Class M and unclassified public lands guidelines would fail to do so.

When placed in context of other developments within the West Mojave, including increased land development, mining and increased recreational use of habitat lands, the reduction in surface disturbance by the elimination of unnecessary and parallel routes and those impacting certain species would be beneficial and an improvement over the existing situation (the No Action Alternative). This is because larger blocks of relatively undisturbed habitat would be available, creating a lesser chance of vehicle collision, a reduced disturbance factor, and less fragmentation.

Livestock Grazing: Several actions would contribute to an overall loss of land designated for livestock grazing that the BLM administers:

- *Fort Irwin Expansion:* The Fort Irwin expansion includes part or all of the Goldstone (100% or 9,726 acres), Superior Valley (42% or 69,328 acres), and Cronese Lake (<10% or 4,200

acres) allotments. Fort Irwin does not authorize grazing. The Goldstone allotment would be entirely unavailable for grazing and the portions of the Superior Valley and Cronese Lake allotment located on Fort Irwin would be unavailable for grazing. This would represent a total loss of approximately 83,254 acres of public land designated for livestock grazing.

- *Voluntary Relinquishment:* At this time there are no known permittees or lessees that are considering relinquishing their allotments. If in the future permittees or lessees do start to relinquish their allotments there may be a significant reduction in the livestock grazing available on public land administered by the BLM.

- *Loss Of Ephemeral Sheep Grazing Due To DWMA's Boundaries:* Allotments located entirely within DWMA's, including Gravel hills (130,075 acres), Superior Valley (the remainder or 95,738 acres), Buckhorn Canyon (12,364 acres), and Pilot Knob (37,857 acres). Portions of allotments located in DWMA's, including Shadow Mountain (80% or 41,806 acres), and the Stoddard Mountain West Unit (63,889 acres). Portions of the Cantil Common, Monolith-Cantil, Lave Mountain allotment that are not within a DWMA, but that would face a possible loss of grazing due to the DWMA boundary location.

The cumulative effects of Alternative A would reduce the size of the portion of the livestock industry centered on the use of BLM administered lands in the California Desert Conservation Area by approximately 465,871 acres.

Minerals: Alternative A, with about 50,000 acres proposed for withdrawal, coupled with the 1994 California Desert Protection Act (CDPA) and the withdrawal of nearly 45,000 acres for the San Bernardino National Forest (NF) in 2001would have at least a slight negative impact on mineral development. The CDPA placed known deposits and large areas of mineral potential into wilderness and parks. The FS withdrawal and associated strategy for managing carbonate endemic plant habitat would result in an estimated job loss of from $173 million to $280 million and corresponding loss of 142 to 230 full-time mining related jobs over 20 years (Economic & Planning Systems, Inc., 2002, p. 9). All of these actions reduce the availability of mineral deposits, for example clay, and potentially, aggregate deposits in the Oro Grande/ Brisbane Valley area and limestone at the transition between Lucerne Valley and the San Bernardino Mountains. When deposits, or large portions of deposits, such as Opah Ditch are placed off limits to mining (CDPA) or given ACEC protective status (Pisgah flow), it hastens the depletion of other deposits and increases highway construction costs. Increased costs for maintaining state and federal highways comes not only from increased hauling distances but from increased costs of the aggregate itself as deposits on government land are no longer available, requiring that royalties be paid to private owners.

On a regional scale, the contribution to cumulative effects from this alternative would probably be minor. On a local scale, the effects of the withdrawal may have a noticeable negative effect on the local industry and economy.

Recreation: No significant cumulative impacts are expected. This is due to both the sheer size of the planning area and the many recreational opportunities it provides, and the effectiveness of the design of the route network, which meets the needs of foreseeable commercial and recreational motorized access. Some cumulative effects will occur, however. These would include the following:

- Recreational four-wheel drive and motorcycle use would shift from areas identified as having higher than average densities of desert tortoise sign to those area identified as having less than average or no desert tortoise sign. These shifts would generally be to more mountainous or steeper terrain within the planning area. For example, the closure of motorized routes in the flatter bajadas and wash terrain of the El Mirage, Kramer, Fremont and Superior sub regions would shift such use to the more mountainous portions of those sub regions where more motorized routes were retained. As a result those areas are likely to see greater recreational use.

- Although many motorized touring routes have been retained in the flatter terrain, those visitors who enjoy this type of experience may find their recreational opportunities somewhat limited within the DWMAs. They may shift their recreational activities to the OHV open areas that have flatter terrain, such as Stoddard and Johnson Valleys. As a result, use of these areas may increase. Low relief areas that are outside of the DWMAs may also see increased motorized vehicle use.

- Lands north and east of the Superior sub region are among those lands transferred by Congress to Fort Irwin. Should this area no longer be available for motorized vehicle recreation, this loss of recreation opportunity, together with the rapidly growing Southern California population and the anticipated continued growth in motorized recreation, would displace some visitors onto the smaller remaining BLM land base. Use of western Superior Valley was never particularly high, so the scale of the displacement would be small, but these lands, being removed from major highways and population centers, did offer a remote recreation experience that would no longer be available.

- Although a variety of routes and terrain are afforded by the route system proposed under this alternative, the opportunity to have a "remote experience" is expected to become increasingly difficult during the term of the plan. The cumulative effect of this is likely to be a displacement of those visitors seeking a remote experience, leading them increasingly to visit locations within adjoining, but more remote regions such as the NEMO and NECO planning areas. The scale of this "spillover" is expected to be relatively small, and should not affect the ability of visitors to enjoy a "remote experience" in these areas during the term of the West Mojave Plan.

Cultural Resources: Cumulative impacts to cultural resources would be significant. The total number of prehistoric/historic sites that are being affected by the open route network is unknown. Most of these sites are being affected by routes designated during the 1985-87 route designation process, so the impacts have been occurring for a very long period of time. Since these routes would remain as

open routes over much of planning area the impacts would occur under West Mojave Plan implementation. The total number of sites subject to adverse effects along vehicle corridors is also unknown but certainly numbers in the hundreds, perhaps thousands, of sites. Cultural resources are a finite and non-renewable resource so loss of the information they contain is a permanent loss for which there is no mitigation, restoration, or rehabilitation. The loss is irrevocable. Opportunities for the public to view these sites in their natural surroundings and to experience the sense of exploration, adventure, and understanding that comes with observing them *in situ* are permanently lost. Our ability to provide educational and interpretive opportunities is decreased with the loss of each site or portion thereof. Prehistoric sites are repositories of cultural information about people who lived here into the far distant past and are of very great value and concern to Native American people today. Continued destruction removes pieces of our past on a daily basis.

4.3 ALTERNATIVE B: BLM ONLY

Impacts would be as described for Alternative A, except as discussed below.

4.3.1 Air Quality, Soils and Water

Air Quality: Impacts would be the same as described above for Alternative A, except as specifically noted below. Table 4-46 describes impacts that would result from the implementation of Alternative B.

Table 4-46
Air Quality Impacts – Alternative B

ACTIVITY	POLLU-TANT	CHANGE	MAGNITUDE	TIME SCALE	LOCATION	NOTES
Private land development	PM_{10}	None	None			Does not apply to private lands
	Ozone precursors	None	None			Does not apply to private land
Paved roads	PM_{10}	Increase	Slight	Short & long term	Within DWMAs on BLM only	Could eliminate paving as dust control measure on unsurfaced roads
Allowable ground disturbance	PM_{10}	Increase	Up to 1% from source[1] Unknown potential increase on Private lands	Long term	Within West Mojave area	Increased ground disturbance and bare ground would emit additional PM_{10} Would be no limit on PVT. lands
Restoration of existing disturbances	PM_{10}	Increase	Slight (less than alt. A)	Short term	On BLM land only.	Ground disturbance and bare ground would initially emit PM_{10}. Sites would stabilize within 1-2 years.
	PM_{10}	Decrease	Slight (less than alt. A)	Long term		
Notes: 1. MDAQMD inventory of sources showed nearly 8% of PM_{10} emissions from construction and bare ground in 1990.						

Cumulative Impacts on Air Quality From Alternative B: There would be reductions in emissions of particulate matter from BLM managed lands. This would result in corresponding declines in PM_{10} concentrations in a number of areas. On an overall plan basis, there would be a significant reduction in particulate emissions. Reductions would occur on BLM lands away from population centers.

Significance: There would be a significant reduction in PM_{10} emissions as a result of Alternative "B". These reductions would be larger than alternative A.

Conformity Analysis and Conclusion: Alternative B results in significant reductions of PM_{10} emissions. All SIP requirements for the five federal PM_{10} nonattainment/ maintenance areas are met by the alternative for PM_{10}. All emission levels are below deminimus levels, so no further conformity analysis is necessary and a formal conformity determination is not required.

4.3.2 Biological Resources

4.3.2.1 Natural Communities

Because of the complex public and private ownership pattern within the West Mojave, conservation of natural communities under Alternative B would vary considerably from that of Alternatives A, C, D, E and F, where private lands are contributing to the HCA. The acreage of each natural community that is protected by Alternative B is presented in Table 4-47.

Conservation measures on BLM lands would conserve a large and representative example of the two primary plant communities, creosote bush scrub and saltbush scrub, though these would be fragmented by the checkerboard ownership pattern within the Fremont-Kramer and Superior-Cronese DWMAs. More consolidated blocks of these communities would be present in the Ord-Rodman DWMAs and the MGS conservation area in Kern and Inyo counties. Within the DWMAs, taking no action on route designation would subject the existing large blocks of creosote bush scrub and saltbush scrub communities to fragmentation over time, although the magnitude of these impacts from use of dirt paths and roads is unknown. In addition, without route designation on public lands, gradual degradation of these natural communities would proceed without restraint. Desert playas and desert washes are also vulnerable to increasing degradation from vehicular use.

Plant communities found at the western boundary of the planning area, in the transition between the mountains and the desert, would be conserved along the eastern Sierra Nevada mountains, but would have only minimal conservation in the San Gabriel and San Bernardino Mountains foothills. These communities are different forms of chaparral, pinyon and juniper woodlands, Mojave mixed woody scrub and Joshua tree woodland.

Many of the rare plant communities would only be conserved in selected ocations iunder

Alternative B, and others wou,d have no assured conservation. Riparian scrub and riparian forest in the Mojave River would not be protected except at Camp Cady, Afton Canyon and in existing county parks (i.e. Mojave Narrows Regional Park). Isolated wetlands, as at Big Morongo Canyon, the palm oases in Joshua Tree National Park, and the eastern Sierra canyons wuld remain conserved by BLM and NPS management. Other rare communities, including alkali wetlands and remnant native grasslands would have no pro-active conservation program.

Impacts to the rare natural communities would depend on the location of future development on private land and on the ability of the local jurisdictions to provide conservation. Existing wetland protection laws would probably conserve the majority of the riparian communities, but the alkali seeps, springs, and meadows may not be conserved because of changes in the laws governing isolated wetlands. On public lands, BLM would regulate the placement of new facilities and construction in order to protect unusual natural communities and wildlife habitats. Existing route designations would probably adequately protect the limited wetland communities on public land.

Table 4-47
West Mojave Natural Communities Impacted by Alternative B (In Acres and %)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Alkali seep	59	0		0		0		59	(100)
Alkali sink scrub	10,895	1,014	(9.3)	2,420	(22.2)	3,434	(31.5)	7,461	(68.5)
Big sagebrush scrub	9,601	8,108	(84.5)	852	(8.9)	8,960	(93.3)	641	(6.7)
Blackbush scrub	132,603	87,343	(65.9)	0		87,343	(65.9)	45,260	(34.1)
Chamise chaparral	28,593	0		0		0		28,593	(100)
Cottonwood-willow riparian forest	11,533	6,793	(58.9)	0		6,793	(58.9)	4,740	(41.9)
Creosote bush scrub	4,025,617	409,400	(10.2)	930,684	(23.1)	1,389,688	(34.5)	2,635,929	(65.5)
Desert holly scrub	21,716	2,190	(10.1)	16,663	(76.7)	18,852	(86.8)	2,864	(13.2)
Desert wash scrub	34,496	4,902	(14.2)	1,746	(5.1)	6,648	(19.3)	27,847	(80.7)
Fan palm oasis	33	0		0		0		33	(100)
Freshwater seep	388	0		0		0		388	(100)
Gray pine-oak woodland	2,678	49	(1.8)	0		49	(1.8)	2,629	(98.2)
Greasewood scrub	3,662	0		1,938	(52.9)	1,938	(52.9)	1,724	(47.1)
Hopsage scrub	6	5	(83.3)	1	(16.7)	6	(100)	0	
Interior live oak woodland	589	0		0		0		589	(100)
Jeffrey pine forest	1,811	1,811	(100)	0		1,811	(100)	0	
Joshua tree woodland	10,383	4,763	(45.9)	0		4,763	(45.9)	5620	(54.1)
Juniper woodland	87,167	6,960	(8.0)	0		6,960	(8.0)	80,207	(92.0
Mesquite bosque	7,110	2,491	(35.0)	805	(11.3)	3,296	(46.4)	3814	(53.6)
Mojave mixed woody scrub	689,589	378,795	(54.9)	74,243	(10.8)	453,037	(65.7)	236,551	(34.3)
Mojave riparian forest	4,687	28	(0.6)	0		28	(0.6)	4,659	(99.4)
Montane meadow	966	0		0		0		966	(100)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Montane riparian scrub	2,228	203	(9.1)	236	(10.6)	439	(19.7)	1,789	(80.3)
Native grassland	3,375	0		0		0		3,375	(100)
Northern mixed chaparral	992	992	(100)	0		992	(100)	0	
Pinyon pine woodland	18,773	12,077	(64.3)	593	(3.2)	12,670	(67.5)	6,102	(32.5)
Pinyon-juniper woodland	158,329	84,581	(53.4)	8,668	(5.5)	93,249	(58.9)	65,081	(41.4)
Rabbitbrush scrub	7,842	92	(1.2)	0		92	(1.2)	7,750	(98.8)
Scrub oak chaparral	36,385	23,106	(63.5)	0		23,106	(63.5)	13,279	(36.5)
Saltbush scrub	591,713	18,897	(3.2)	130,967	(22.1)	149,864	(25.3)	442,049	(74.7)
Semi-desert chaparral	128,230	3,855	(3.0)	0		3,855	(3.0)	124,376	(97.0)
Shadscale scrub	38,602	7,194	(18.6)	31,320	(81.1)	38,514	(99.8)	88	(0.2)
TOTAL	6,070,651	1,115,253	(18.4)	1,201,136	(19.8)	2,316,389	(38.2)	3,754,262	(61.8)

The table excludes acreage in the GIS database describing landforms (lava, lakes, playas), disturbed lands (agriculture, urban) and disturbed plant communities (non-native grassland, ruderal).

Total in area excludes military lands.

Existing conservation includes ACECs, Wilderness, National Parks, State Parks, CDFG Ecological Reserves.

New conservation includes the HCA for this alternative. Los Angeles County SEAs are excluded.

Potential incidental take includes areas not under specific conservation and available for development or other use. Actual loss of these communities is dependent on location, development trends and land ownership.

4.3.2.2 Desert Tortoise

Excepting minor differences, Alternative B shares the same benefits and residual impacts associated with Alternative A for the following categories, which for the most part, are not reiterated in Table 4-48: Establish DWMAs, Land Management Within DWMAs, Land Management Adjacent to DWMAs, Size Relative to the Existing Tortoise ACEC, BLM ACEC Management, Agriculture, Commercial Filming, Drought, Energy & Mineral Development, Cattle Grazing, Sheep Grazing, Head Starting, and Motorized Vehicle Access Network.

Table 4-48
Tortoise Impacts of Alternative B

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
Establish DWMAs • Would establish *four* DWMAs, including 1,595 mi^2 of public lands, which would have many of the benefits described above for Alternative A	Establish DWMAs • A total of 664 mi^2 of private land would physically be located within DWMAs but not managed for tortoise conservation, as would occur on public lands; both direct and indirect impacts are likely to be much more adverse and widespread • DWMA configuration is based on Alternative A, excluding private lands; no public lands outside DWMAs have been added to minimize the effects of providing for conservation on a substantially smaller DWMA land base.
Recent and Current Tortoise Occurrence **Includes**: • 1,595 mi^2 (14% of the 2002 range) within *four* DWMAs • Good representation in central part of 2002 range, but inferior to Alternative A due to lack of private land • 291 mi^2 (52%) of higher density areas • 243 of 424 (57%) tortoises • 1,481 mi^2 of USFWS critical habitat • 856 mi^2 of BLM Category I (96%) and 317 mi^2 of Category II (87%) habitats	Recent and Current Tortoise Occurrence **Does not include**: • 9,539 mi^2 (86%) of the 2002 range • Poor representation in periphery of range, and fails to include essential habitats on private land • 272 mi^2 (48%) of higher density areas • 181 of 424 (43%) tortoises • 90 mi^2 of USFWS critical habitat • 38 mi^2 of BLM Category I (4%) and 47 mi^2 of Category II (13%) habitats
Land Management Within DWMAs • Would establish context for implementing conservation measures in DWMAs, which would provide for consistent, more efficacious conservation on public lands • Presence-absence surveys would continue to be required on all public lands in and out of DWMAs, and clearance surveys conducted as authorized by section 7 on a case-by-case basis, which have proven effective at minimizing impacts thus far	Land Management Within DWMAs • Tortoises would continue to be significantly impacted on private lands inside and outside DWMAs without consistent protection, conservation or compensation • Would fail to provide for programmatic clearance of tortoises from impact areas on private lands, which would result in existing failure to adequately minimize impacts
Land Management Adjacent to DWMAs • BLM would be ideally situated to minimize impacts of adjacent vehicle open areas on DWMAs (although those impacts would continue to occur on private lands) • DWMA locations would provide for mutual benefits to BLM, military (Edwards AFB and China Lake), and Joshua Tree National Park (Pinto Mtn.)	Land Management Adjacent to DWMAs • BTAs would not be established, which would lead to relatively more indirect impacts from non-DWMA lands due to the absence of heightened county review • SRAs would not be established, which would lead to protection on a case by case basis and perpetuate existing problems

BENEFITS	RESIDUAL IMPACTS
BLM Management of Category I, II, & III Habitat • Habitat categories would remain unchanged in DWMAs	BLM Management of Category I, II, & III Habitat • Existing Category I (38 mi^2) & II (47 mi^2) habitats on public land outside DWMAs would be changed to Category III, which could constitute a significant impact[10]
Plan Implementation • Milestones would be identified for implementing measures, which would result in timely implementation or withdrawal of take authorization • Conservation management would still be facilitated on public lands (see Alternative A), but the efficacy of a region-wide strategy would be significantly undermined without private land involvement	Plan Implementation • BLM would not be signatory to an Implementing Agreement, which would provide for significantly less coordination and protection on public and private lands in DWMAs • An Implementation Team would not be created to oversee conservation on private and public lands • There would be no consistent region-wide approach, which would undermine conservation in DWMAs on public lands (increase of indirect impacts) and provide for no minimization of direct impacts on private lands • The incentive to ensure conservation on public lands in exchange for incidental take on private lands would be lost
Federal Permitting • Same as Alternative A for public lands	Federal Permitting • Would not result in issuance of programmatic Section 10(a) take authorization on private lands, which would perpetuate existing problems that have resulted in minimal benefit to tortoises, although lost habitat would be compensated • Would fail to implement standard BMPs on private lands and result in implementation of measures developed on a case-by-case basis that, due to their variable nature, would be less effective at protecting tortoises
State Permitting • Not Applicable; even so, CDFG often (but not always) requires enhancement and endowment funds for BLM-authorized projects	State Permitting • Would perpetuate existing problems associated with issuing 2081 permits on a case-by-case basis, increasing the possibility of inconsistent and less effective minimization and mitigation standards • Would perpetuate inconsistent approach of applying CDFG enhancement and endowment funds (or not) on BLM-authorized projects
Compensation & Fee Structure • In some locations, would provide for the highest compensation ratio of any alternative (i.e., up to 6:1 acres), although most projects are compensated at a ratio	Compensation & Fee Structure •1991 MOG formula would be used for habitat compensation, which would perpetuate ineffectual take avoidance and uncoordinated management on acquired

[10] The proposal to convert non-DWMA Category I & II habitats to Category III was derived in the context of Alternative A, where both public and private lands were included in proposed DWMAs. This alternative would still result in the conversion of Category I & II habitats, but without 664 mi^2 of private land in DWMAs. Conversion of 85 mi^2 of Category I and II habitats would result in less compensation under the MOG formula (compensation would be 1:1 rather than 2:1 or 6:1 in Category I & II), replace relatively protective goals (maintaining and/or increasing stable, viable populations in Category I & II) with less protective ones (limit declines through mitigation in Category III), etc. In this context, the conversion to Category III would be unjustified and could result in significant impacts to the conservation function of this alternative.

BENEFITS	RESIDUAL IMPACTS
of between 2:1 and 4:1 • Compensation would be somewhat commensurate with the severity of impact, as all lands outside DWMAs would be designated as Category III Habitat (1:1 compensation ratio), and relatively higher compensation fees would still be collected in DWMAs	lands • Compensation would be determined on a case-by-case basis, which has thus far resulted in only nine Section 10(a) permits, an approach which has not effectively minimized impacts • BLM's funding sources would not be supplemented by compensation fees collected for private land development; single-family residences would be constructed on private lands in DWMAs without fee collection; reduced fee collection could affect the BLM's ability to implement measures and acquire lands • Compensation would occur for only those projects where tortoise sign was found, which fails to minimize indirect impacts that would be alleviated by collecting fees in ½:1 and 1:1 compensation areas, even where tortoise sign was not found; perpetuates current problems
1% ALLOWABLE GROUND DISTURBANCE	
1% Allowable Ground Disturbance • 1% AGD would be the same on public lands as Alternative A, and would significantly minimize the amount of habitat available for authorized take in DWMAs	1% Allowable Ground Disturbance • Would fail to limit authorized take on private lands, resulting in direct impacts to private lands and indirect impacts to adjacent public lands in DWMAs • Rather than 4,500 acres available for authorized take on private lands, 450,000 acres would be available, which would constitute a significant impact and perpetuate existing problems
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
• Land acquisition would continue on a case-by-case basis, which provides some (minimal) benefit at a very slow rate • Public lands within DWMAs would not be available for disposal, which would ensure that they are either retained or consolidated to promote conservation	• Would perpetuate variable and inconsistent land acquisition programs, which rely on discretion (and limited understanding) of proponents[11] • Would fail to augment BLM's existing acquisition program, since fees would not be collected on private land; would detract from BLM's ability to manage programs (i.e., motorized vehicle access, law enforcement, fencing, etc.) enhanced by consolidated public ownership • May facilitate mineral development on newly acquired lands, as described in Alternative A
CONSTRUCTION ACTIVITIES	

[11] In the early 1990's, one proponent attempted to transfer 40 acres of private land in the San Joaquin Valley to the Barstow office of the BLM to compensate for section 7-authorized impacts in 29 Palms. Although this is an extreme example, current management results in word-of-mouth approaches to acquiring land and identifying the responsible management agency (mostly BLM and DTPC, but up to the discretion of the proponent when impacts are on private lands)

BENEFITS	RESIDUAL IMPACTS
Construction • In this table, other sections address fee structure and compensation, and land management within DWMAs; otherwise same as Alternative A, which would result in less authorized take, as private lands are not included	Construction • Would fail to regulate new construction on private lands, which would perpetuate existing problems
EDUCATION PROGRAM	
Education • Although an education subcontractor would not be employed, BLM would increase education outreach for users in open areas to garner public cooperation, minimize impacts in adjacent DWMAs, reduce amount of vandalism to newly installed fences. BLM would provide maps of approved routes and other materials to enhance motorized vehicle access; new brochures for filming and dual sports.	Education • Would fail to employ an education subcontractor, which would seriously undermine outreach to schools, enhancement of existing private programs (e.g., as at San Bernardino County Museum, provided for by DTPC, etc.), and provision of consistent awareness programs for construction workers.
FERAL DOG MANAGEMENT	
Feral Dog Management • Same as Alternative A	Feral Dog Management • A Feral Dog Management Plan would not be developed or implemented on private lands, so impacts would continue unabated, particularly in the vicinity of urbanizing areas adjacent to DWMAs (e.g., Barstow, California City, Lucerne Valley, Twentynine Palms, Yucca Valley)
FIRE MANAGEMENT	
Fire Management	Fire Management • Fails to incorporate new information (e.g., DWMA configuration, higher density areas) that would have further minimized impacts of fire fighting activities in DWMAs
GUZZLERS	
Guzzlers • Same as Alternative A	Guzzlers • Without involvement of counties and cities, would not provide for the studies and remedial actions identified in Alternative A, since guzzlers were installed by CDFG and are not otherwise managed by BLM
HABITAT CREDIT COMPONENT	
Habitat Credit Component • Effectively remain the same as Alternative A since all candidate restoration sites would be on public lands in DWMAs	Habitat Credit Component • The Habitat Credit Component program was conceived for Alternative A, where private lands would be included; using this program on public lands only would increase impacts discussed in Alternative A due to the relatively small DWMA size
LAW ENFORCEMENT	
Law Enforcement • Increased law enforcement and outreach (recreational technicians) would occur and be focused on public lands in DWMAs, which would be the primary means of minimizing impacts in DWMAs and essential to facilitate success of most programs	Law Enforcement • Increased BLM enforcement would not protect tortoises and regulate uses on private lands

BENEFITS	RESIDUAL IMPACTS
RAVEN MANAGEMENT	
Raven Management • Pertinent components of the raven management plan would be implemented on public lands	Raven Management • Prescriptions would not be implemented on private lands, which would significantly detract from the intended function of the program • Would allow for new landfills on private lands within five miles of DWMAs, which could result in significant impacts depending on the locations relative to DWMAs • Would not allow for direct contributions from participating utilities, so that programmatic salvage permits and other programs would fail to minimize raven impacts
TRANSPORTATION	
Transportation • Same as Alternative A	Transportation • Without the participation of Caltrans and county road departments, there would be no coordinated highway fencing program; fences would still be installed as new roads are widened (in 10 to 15 years), but tortoises would be impacted in the interim, particularly along Highway 395, south of Kramer Junction • Road maintenance (seasonal restrictions, roadbed/berm requirements, etc.) would be restricted to BLM activities on public lands, which would fail to effectively protect tortoises since most known mortality occurs along paved roads maintained by counties and Caltrans
UTILITIES	
Utilities • Same as Alternative A	Utilities • See comments under Raven Management, above • Would fail to implement programs designed for construction, maintenance, and operation (particularly water districts) on private lands

Alternative B would result in substantial benefits on public lands in DWMAs, as identified in the first column (and pertinent sections of Alternative A). However, the alternative does nothing to minimize or mitigate incidental take on private lands (inside or outside DWMAs); in fact, those problems would be perpetuated. This alternative would not address "spill-over" effects that would continue to impede BLM conservation management. Nor does it provide a single, consistent conservation strategy that could be implemented collaboratively by all agencies and jurisdictions within the western Mojave Desert. Failure to adequately minimize or mitigate impacts on private lands would handicap effective conservation and tortoise recovery on public lands. On a regional scale this would result in significant impacts and substantially undermine tortoise conservation.

4.3.2.3 Mohave Ground Squirrel

Alternative B is similar to Alternative A, in that it proposes a conservation strategy that would provide for MGS conservation in the MGS CA and the two DWMAs, but differs significantly in that it

would only apply to public lands managed by the BLM.

Similar benefits and residual impacts given for the tortoise and/or MGS (mostly in Alternative A for the two species) would affect the following programs where the two species ranges coincide: Dump Removal and Waste Management; Education; Fire Management; Habitat Reclamation and Restoration; Land Acquisition; Mining; Signing and Fencing the Two DWMAs; Multiple Use Class Designations; Conservation Relative to Military Bases; Motorized Vehicle Access; Recreation (Competitive Events, Dual Sports, Hunting and Shooting, Parking and Camping); Transportation (Highway Fencing and Culverts); Utilities Construction and Maintenance; Commercial Filming and Plant Harvest; General and Focused Trapping Studies; and Monitoring.

Table 4-49 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under Alternative B for the tortoise. As such, the programs listed above are not reiterated the table.

Table 4-49
Mohave Ground Squirrel Impacts of Alternative B

BENEFITS	RESIDUAL IMPACTS
Conservation Area Size of Conservation and Incidental Take Areas • (AB-1) The 2,693 mi^2 MGS CA would include 2,016 mi^2 of public lands (75% of the 2,693 mi^2 MGS CA).	Conservation Area Size of Conservation and Incidental Take Areas • Failure to include private lands managed by cities, counties, and other agencies other than the BLM would constitute a significant impact. There are a total of 567 mi^2 of private lands (21% of the 2,693 mi^2 MGS CA; the other 4% includes State land and miscellaneous ownerships) where take would be considered on a case-by-case basis. All such lands would ultimately be available for authorized development and likely undermine protection of large unfragmented blocks of habitat, which would be required for conservation of this species.
Specified Conservation Areas Outside the MGS CA Biological Transition Areas (BTAs)	Specified Conservation Areas Outside the MGS CA Biological Transition Areas (BTAs) • Failure to establish BTAs adjacent to the MGS Conservation Area would result in no heightened review of proposed projects by San Bernardino, Kern, Los Angeles, and Inyo counties, which may lead to significant indirect impacts within the MGS CA.

BENEFITS	RESIDUAL IMPACTS
Specified Conservation Areas Outside the MGS CA Los Angeles County Significant Ecological Area • The WMP would not officially adopt the heightened review associated with SEA TAC; this would not constitute a significant impact, as the SEA TAC would continue to function to review projects and require 2081 permits for the MGS, where appropriate Sierra Foothills Habitat Connector • Failure to include Los Angeles County's significant ecological areas as a component of the MGS conservation strategy would not likely result in adverse impacts, as SEA TAC already considers impacts of new development relative to the MGS, and ensures, where appropriate, that 2081 take authorization is secured before the project is approved.	Specified Conservation Areas Outside the MGS CA Los Angeles County Significant Ecological Area Sierra Foothills Habitat Connector • The Sierra Habitat Connector would not be established, which could result in significant impacts if development severs this important corridor.
Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas MGS conservation would benefit from the establishment of the following new conservation areas for other species (acreage given in parenthesis are public lands occurring within the MGS range): Alkali Mariposa Lily (1.5 mi^2), Barstow Woolly Sunflower (27 mi^2), Bendire's Thrasher (20 mi^2), Lane Mountain Milkvetch (19 mi^2), and North Edwards (1.8 mi^2).	Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas
Management Structure within the MGS CA DWMA Management within the MGS CA • (AB-1) (AB-1) Two of the four DWMAs (i.e., Fremont-Kramer and Superior-Cronese) would be encompassed in the MGS HCA, including 946 mi^2 of public lands. Management within the DWMAs would benefit MGS conservation. Incidental Take Authorization • Failure to issue a programmatic habitat conservation plan and 2081 permit would result in perpetuating serious existing problems for authorizing take of the MGS, similar to those described for above for tortoise. Project proponents would be required to trap or assume presence and obtain individual take permits, which would provide for conservation at the discretion of the proponent (i.e., variable use of the DTPC or other entities for compensation). Compensation and Fee Structure • (AB-5) The MOG compensation formula has been applied to compensation ratios when tortoise is also involved, but is not applied under 2081 permitting when only the MGS is affected.	Management Structure within the MGS CA DWMA Management within the MGS CA Incidental Take Authorization Compensation and Fee Structure • (AB-5) Enhancement and endowment fees ($350/acre) would continue to be collected for MGS on a case by case basis, and existing permitting problems would be perpetuated, resulting in impacts to MGS conservation.

BENEFITS	RESIDUAL IMPACTS
Management Structure within the MGS CA 1 % Allowable Ground Disturbance • (AB-6) The one percent allowable ground disturbance threshold would apply to public lands (only), and minimize the amount of MGS habitat that could be developed. Best Management Practices • (AB-10) Implementation of BMPs within DWMAs and the MGS CA would minimize the amount of habitat disturbance associated with direct impacts.	Management Structure within the MGS CA 1 % Allowable Ground Disturbance Best Management Practices • (AB-10) Indirect impacts would likely occur in spite of implementing BMPs, as described above for the tortoise.
Management Structure within the MGS CA HMP Instead of ACEC Designation • (AB-2) Designation of the MGS CA as a BLM wildlife habitat management area would have some benefits over unclassified lands, although the advantages are not clear. • (AB-1) Although the larger MGS CA would not be designated as an ACEC, those public lands within the two DWMAs would be designated as such, and would provide for more protection than the HMA envisioned for the non-overlapping portions of the MGS CA.	Management Structure within the MGS CA HMP Instead of ACEC Designation • (AB-2) Failure to designate the MGS CA as an ACEC would result in far less protection and funding priorities, which is a serious weakness of this alternative.
Miscellaneous Conservation Programs Feral Dog Management Plan • (AB-8) Failure to establish a feral dog management plan is not likely to adversely affect the MGS, as feral dog predation has not been documented as a significant threat.	Miscellaneous Conservation Programs Feral Dog Management Plan
Miscellaneous Conservation Programs Habitat Credit Component • (AB-6) Application of the habitat credit component of MGS Alternative A to public lands would result in beneficial impacts described relative to the desert tortoise.	Miscellaneous Conservation Programs Habitat Credit Component
Miscellaneous Conservation Programs Law Enforcement • (AB-9) Increased law enforcement within the two DWMAs would be limited to public lands, and would benefit MGS conservation where enforcement activities minimize the amount of habitat degradation, particularly cross country travel.	Miscellaneous Conservation Programs Law Enforcement • (AB-9)There is no intent to increase ranger patrols on public lands within the HCA, which may constitute a marginal impact where illegal human uses result in degraded habitats.
Miscellaneous Conservation Programs Raven Management Plan • (AB-11) Although Dr. Leitner indicated anecdotal evidence that common ravens may prey on the MGS, there are no available data to assess the relative level of the impact. Beneficial or adverse impacts are unknown.	Miscellaneous Conservation Programs Raven Management Plan

BENEFITS	RESIDUAL IMPACTS
Transportation Road Maintenance	Transportation Road Maintenance • (AB-7) Highway maintenance seasonal restrictions, roadbed and berm requirements, and preclusion of the use of invasive weeds for landscaping would apply only to portions of roads on public lands, which could result in impacts to the MGS, which is known to burrow in roadside berms. There are no available data to determine if this may constitute a significant impact, but it is likely to constitute an impact where MGS burrows would be destroyed.

The advantages and disadvantages of Alternative B on public lands would generally be the same as given for Alternative A. The most important differences concern: (1) the failure to include private lands in the MGS CA, an exclusion of 567 mi^2 of private lands that could result in significant impacts; (2) the lack of BTAs and their requirement for heightened local government project review, which leaves open the possibility of indirect significant impacts; and (3) the lack of application of BMPs to private land projects. Another difference between Alternative B and other alternatives would be the failure of Alternative B to capture about 500 mi^2 of creosote bush scrub. The other alternatives encompass between 1,751 and 1,771 mi^2 of this community; Alternative B includes 1,271 mi^2, or about 480 mi^2 less than Alternative A, where this community occurs primarily on private lands.

4.3.2.4 Mojave River Bioregion

The eleven animal species dependent on the Mojave River riparian habitat would not benefit from the requirement to maintain groundwater levels in the river. Eradication of invasive plants would continue as a proactive program of the Mojave Desert Resource Conservation District, but would most likely be at a reduced level compared to the HCP mandate to work in areas where species are at risk, including Camp Cady and near Helendale. BLM would continue its restoration efforts at Afton Canyon.

Incidental take permits could not be issued for most or all of the eleven riparian-dependent species in the Mojave River bioregion. In the worst case, the majority of occupied habitat could be eliminated for the Mojave River vole over the long term, leading this species towards extinction. Recovery of the least Bell's vireo and southwestern willow flycatcher could be impaired and the local range of the other riparian birds and the southwestern pond turtle would shrink to the regions where permanent groundwater remains in the upper and lower Mojave Narrows.

These impacts are not attributable to BLM actions. BLM management of its lands along the Mojave River would not adversely affect Mojave River bioregion species. Expansion of the Afton Canyon ACEC is the primary BLM action affecting the Mojave River bioregion riparian species, and this impact would be beneficial. Establishment of conservation areas for the Mojave fringe-toed lizard would positively contribute to conservation of the dry portions of the river.

4.3.2.5 Bats

The known roosts on BLM and NPS lands would be gated and protected. Exclusion of private lands in a conservation program would perpetuate the existing situation where many abandoned mine shafts, buildings, and old bridges may be overlooked for their potential as significant roosts. Protection of bats would rely on a case-by-case review under CEQA. Large mining projects on private land are expected to continue to be diligent in survey and mitigation efforts for bats, but smaller projects could easily impact roosts or important habitats without being detected.

Because BLM would pro-actively gate known bat roosts, continue to require surveys and provide for safe evacuation of bats at non-significant roosts, no adverse impacts to bats are expected from BLM actions in Alternative B. The case-by-case review of routes in riparian drainages and desert washes would be in place to protect foraging habitat for Townsend's big-eared bat and California leaf-nosed bat.

4.3.2.6 Other Mammals

Bighorn Sheep: Mining projects in the San Bernardino Mountains would continue to undergo review of impacts on bighorn, as at present. Public woks projects, including highways, railroads, or canals, could be built in areas blocking dispersal corridors. Dispersal corridors could also be subject to rural development without definition of or mitigation for potential impacts on bighorn.

Mojave River Vole: The Mojave River vole would not be covered by incidental take permits. Alternative B would provide no conservation program for this species because no public lands are present within the limited range. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, the impact on species would most likely involve a decline in the long-term. The Mojave River vole utilizes grass and meadow habitat along the river, which is more dependent on surface water than riparian trees. Therefore the vole would be expected to maintain its populations and persist for a long time after groundwater depletion had impacted other wetland-dependent species. The species would be expected to persist at the Mojave Narrows, but be extirpated from the remainder of the river if riparian conditions were eliminated and the stream was converted into a dry channel.

Yellow-eared Pocket Mouse: Impacts on the yellow-eared pocket mouse from Alternative B would be no different from Alternative A in the short term. Key parcels of private land in the Kelso Valley would not be acquired in the long-term, potentially making public lands management more difficult. The need for acquisition is unknown at present, so the significance of this long-term potential impact cannot be assessed.

4.3.2.7 Birds

The following bird species would experience impacts from Alternative B identical in nature to those described in Alternative A: Bendire's thrasher, Inyo California towhee, prairie falcon, and golden eagle.

Brown-crested Flycatcher: Permit take authority would not extend to brown-crested flycatcher under Alternative B. Alternative B would provide no conservation program for the primary nesting areas in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. Its local range would contract to the Mojave Narrows, where permanent groundwater is present. It would also persist at Big Morongo Canyon ACEC and the other riparian locations where groundwater levels are not an issue. This loss would not be adverse to the species as a whole, but would remove one of the larger breeding populations in the state.

Burrowing Owl: Without an education program delivered to applicants for discretionary permits, land development on private lands could substantially increase incidental take of nest sites for burrowing owls.

No permanent occupied habitat would be set aside for conservation of burrowing owl, except for that now present on public land (including State Parks, Ecological Reserves, BLM and NPS lands). Continuation of the existing CEQA review on private lands would result in continued eviction and relocation of owls from occupied nests. This take-avoidance measure generally results in unknown impacts on the specific owls, and does not assure protection of habitat for the evicted or relocated birds.

The beneficial impacts to burrowing owl from route designation would be the same as described in Alternative A.

Most burrowing owls are detected on private lands. Alternative B would therefore result in an adverse impact and a slow decline in the owl's numbers because conservation or protection of existing nest sites on public lands may not allow a sustainable population to remain. The Mojave Desert is a minor part of the burrowing owl's overall range, since it is originally a grassland species and is now adapted to major agricultural areas, including the Central Valley and Imperial Valley. The statewide impact would be relatively minor, based on current information on occupied range and habitats.

Ferruginous Hawk: Raptor-safe electrical distribution lines would be required on BLM lands only. This would miss potential problem poles in several key wintering areas, particularly the Antelope Valley and the Mojave Valley. The existing program of Southern California Edison Company to identify and retrofit problem poles as necessary would alleviate electrocution mortality to some extent, though imposition of a requirement for raptor-safe distribution lines for all jurisdictions would be preferable.

Gray Vireo: Impacts to the gray vireo would be similar to Alternative A except in Los Angeles County. Existing habitat on public lands designated as Wilderness, ACECs and within Joshua

Tree National Park would continue to function for conservation and the designation of the Carbonate Endemic Plants Research Natural Area ACEC would be beneficial to this bird. Within Los Angeles County, impacts would depend on resolution of the proposed Significant Ecological Areas program of Los Angeles County. The Big Rock Creek and Mescal Creek areas of the San Gabriel Mountains foothills are the most important known occupied habitat within the West Mojave Plan boundaries. Without establishment of the Big Rock Creek Conservation Area on private lands, the worse case-scenario would lead to rural development and fragmentation and elimination of the disjunct occurrences. Protection as a Significant Ecological Area with minimum lot sizes of ten acres would most likely maintain the habitat, at least in the short term.

The gray vireo would not be adversely affected overall, but would lose a portion of the western edge of its range. From a statewide perspective this loss would constitute a substantial reduction, perhaps qualifying the species for listing under CESA.

Le Conte's Thrasher: Conserved habitat within the DWMAs would be fragmented by the ownership patterns, but threats to LeConte's thrasher are minimal. No adverse impact to the species is anticipated from Alternative B.

Long-eared Owl: Habitat has not been well defined for the long-eared owl, but most known sites are protected, as at Indian Joe Canyon in the Argus Mountains or at Big Morongo Preserve. The pro-active measure of conserving habitat at Big Rock Creek would not be implemented under Alternative B, which could lead to rural development and fragmentation of the habitat at that location in the long term. Impacts would depend on resolution of the proposed Significant Ecological Areas program of Los Angeles County.

Establishment of Key Raptor Area in the Argus Mountains would benefit the long-eared owl by the requirement to monitor and report on those sites every five years.

Southwestern Willow Flycatcher: Alternative B would provide no conservation program for the primary nesting areas in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. This loss would not be significant to the species as a whole, but would remove one of the few breeding populations in the state and a place where recovery is possible.

Migration habitat in the east Sierra canyons would remain protected under Alternative B.

Summer Tanager: Most occurrences of the summer tanager are not on BLM managed lands and it is unlikely that incidental take authorization could be provided to this species under Alternative B. Alternative B would provide no conservation program for the primary nesting areas in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. This loss would not be significant to the species as a whole, but would remove one of the larger breeding populations in the

state. The local range would contract to the Mojave Narrows, where permanent groundwater is present. It would also persist at Big Morongo Canyon ACEC and the other riparian locations where groundwater levels are not an issue.

Vermillion Flycatcher: Most occurrences of the vermilion flycatcher are not on BLM managed lands and it is unlikely that incidental take authorization could be provided to this species under Alternative B. Alternative B would provide no conservation program for the primary nesting areas in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. This loss would not be significant to the species as a whole, but would remove one of the larger breeding populations in the state. The species might be eliminated from the Mojave River. It would persist at Big Morongo Canyon ACEC and the other riparian locations where groundwater levels are not an issue.

Western Snowy Plover: Most, but not all, playas with nesting habitat would be conserved. High-potential nest areas including Bristol Lake would not be protected, even temporarily. Impacts to this species would be potentially adverse at a few specific locations on private land.

Western Yellow-billed Cuckoo: Incidental take authorization could not be provided for the yellow-billed cuckoo under Alternative B.

Alternative B would provide no conservation program for the potential habitat that may be important to recovery in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would lose habitat that could be important to recovery.

Migration habitat in the east Sierra canyons would remain protected under Alternative B.

Yellow-breasted Chat: Alternative B would provide no conservation program for the substantial nesting areas in the Mojave River and the habitat at Big Rock Creek, and it is unlikely that incidental take authorization could be granted for this species. If groundwater levels in the Mojave River declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. The Big Rock Creek riparian site would not be protected as public land, but existing wetland protection laws are probably adequate to maintain the bird populations at that site. The potential loss of nesting habitat in the Mojave River would not be significant to the species as a whole. Many other nesting areas would remain within the state, and within the West Mojave, as at Big Morongo Canyon, Whitewater Canyon and the east Sierra canyons.

Yellow Warbler: Alternative B would provide no conservation program for the substantial nesting areas in the Mojave River and the habitat at Big Rock Creek, and it is unlikely that incidental take authorization could be granted for this species. If groundwater levels in the Mojave River declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. The Big Rock Creek riparian site would not be protected as public land, but existing wetland protection laws are probably adequate to maintain the bird populations

at that site. The potential loss of nesting habitat in the Mojave River would not be significant to the species as a whole. Many other nesting areas would remain within the state, and within the West Mojave, as at Big Morongo Canyon, Whitewater Canyon and the east Sierra canyons.

Protection of migration and nesting habitat in the east Sierra canyons would be the same as Alternative A.

4.3.2.8 Reptiles

Mojave Fringe-toed Lizard: The goals for conservation of the fringe-toed lizard under an HCP could not be met by conservation under Alternative B. However, new BLM programs would adequately protect fringe-toed lizards at several sites, including the Mojave River, Alvord Mountain, Pisgah Crater and Sheephole Wilderness. Existing ACECs at Cronese Lakes and Manix serve to conserve those occurrences.

The westernmost population at Saddleback Buttes State Park is likely to be extirpated in the long term without a pro-active program to preserve the occupied habitat and ecosystem process that transport and sort the sand by water and wind. The population within the city limits of Twentynine Palms may become fragmented by future development.

The Mojave fringe-toed lizard is not seriously threatened throughout its range, and the BLM-only alternative would beneficially affect six occupied locations. Outside the West Mojave thirteen additional locations support this species, and threats at these sites are minimal. Some are protected within the Mojave National Preserve and Death Valley National Park.

Panamint Alligator Lizard: Impacts to the Panamint alligator lizard from a BLM-only plan would be the same as those described for Alternative A.

San Diego Horned Lizard: About half of the range of the San Diego horned lizard in the West Mojave could not be conserved under Alternative B. Loss of the populations in the San Gabriel and San Bernardino Mountains foothills on private lands would be expected from long-term fragmentation of the habitat by rural and some suburban development. This impact would not affect the viability of the species overall, since the major portion of its range is on the coastal slope of the Transverse Ranges.

Establishment of the Carbonate Endemic Plants Research Natural Area ACEC and designation of routes in the Juniper and Bighorn subregions would benefit the San Diego horned lizard, which is vulnerable to vehicle collisions.

Southwestern Pond Turtle: It is unlikely that incidental take permits could be issued for southwestern pond turtle, because the majority of occurrences are found on private land or are dependent on water supply to the Mojave River, which is not controlled by BLM. Alternative B would

provide no conservation program for the two major habitat areas in the Mojave River. If groundwater levels declined to a point where riparian habitat dies and shrinks in extent, this species would endure a substantial decline in numbers in the West Mojave. This loss would not be significant to the species as a whole, but would remove one of the larger breeding populations in the state.

4.3.2.9 Plants

The following plant species would experience impacts from Alternative B identical in nature to those described in Alternative A: Charlotte's phacelia, flax-like monardella, Kelso Creek monkeyflower, Mojave tarplant, Red Rock poppy, Red Rock tarplant, Reveal's buckwheat, triple-ribbed milkvetch and white margined beardtongue.

Alkali Mariposa Lily: Most occurrences of alkali mariposa lily are on private land and would not be conserved under Alternative B. The major population surrounding Rosamond Lake outside Edwards AFB is threatened with fragmentation by urban development, which would likely continue, making conservation impractical. Adverse impacts to the species would result from this alternative, and the species would rely on the existing protection afforded by military management.

The occurrence of alkali mariposa lily west of Paradise Springs on BLM lands would remain protected under existing management under Alternative B.

Barstow Woolly Sunflower: Alternative B can conserve most, but not all, of the known occurrences of Barstow woolly sunflower outside Edwards AFB. The extension of the major population on the base northwest of Kramer Junction would not be conserved by the North Edwards Conservation Area proposed in Alternative A, and would likely be ultimately fragmented by scattered commercial and industrial development. Known populations would benefit from establishment of a new Barstow woolly sunflower ACEC adjacent to the West Mojave CDFG Ecological Reserve and from imposition of site-specific measures for siting of utilities within the designated corridors. Route designation within the range will also benefit this West Mojave endemic plant.

Carbonate Endemic Plants: The four species of listed carbonate endemic plants are not threatened in the short term within the CDCA. Without a long-term protection plan, however, industrial mining is likely to impact these plants and contribute to further fragmentation of the habitat. Establishment of a Research Natural Area ACEC in conjunction with similar measures by the Forest Service would ensure their long-term survival. Impacts from Alternative B are similar to those of Alternative A except that important private land occurrences would not be addressed in detail. Assuming that the Carbonate Habitat Management Strategy is put into place, overall impacts to the carbonate endemic plants are reduced to acceptable levels and the goal of permanent protection would be achieved.

Crucifixion Thorn: Crucifixion thorn would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Coyote subregion. Because

of the remote areas of occurrence of crucifixion thorn, no adverse impacts are expected to this species for the duration of the West Mojave Plan.

Desert Cymopterus: Desert cymopterus would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Kramer and Superior subregions. Without the establishment of a conservation area northwest of Kramer Junction, however, occurrences and habitat could be lost or fragmented. Lack of a rangewide plan for this narrow endemic plant could lead to its listing as threatened or endangered within the term of the Plan.

Kern Buckwheat: Impacts to this very restricted endemic plant would be similar to Alternative A, except that the private land occurrence would not be specifically protected by a requirement of avoidance. The CEQA review accompanying any development application on these lands would most likely be adequate to conserve the species. No adverse impacts are anticipated from Alternative B.

Lane Mountain Milk vetch: The BLM conservation program for Lane Mountain milkvetch would result in eventual acquisition of most private land containing this endangered plant, in conjunction with the Army mitigation plan for expansion of operations at Fort Irwin. Without participation of the local jurisdictions, some occurrences on private land could be lost prior to acquisition. This would be an impact making recovery less likely and potentially jeopardizing the continued existence of Lane Mountain milkvetch. This outcome is unlikely because threats to occupied habitat on private lands outside the military boundaries are few.

Little San Bernardino Mountains Gilia: Incidental take permits could not be issued for this species under Alternative B. Without a proactive approach to protection of the limited desert wash habitat, gilia populations would be expected to decline over the long term, perhaps to the point where the plant would become listed as threatened or endangered.

Mojave Monkeyflower: Under Alternative B, the majority of Mojave monkeyflower populations would be conserved. Some of the remaining occurrences on private land would be lost, though threats from development are few in the known occupied habitat. The threat of fragmentation of habitat, which isolates occurrences from each other, making pollination more difficult, would increase. The combined impacts of fragmentation and potential loss of occurrences for this West Mojave endemic would be a substantial adverse impact.

Parish's Alkali Grass: No conservation would be assured for Parish's alkali grass. Discretionary development at the single known site would depend on mitigation measures imposed by the local jurisdiction. Because this is a wetland dependent plant and known to be very rare, it is likely that avoidance would be required by the wetland protection laws and the CEQA process. The surrounding uplands could be developed.

Parish's Phacelia: Parish's phacelia would remain protected on public land by the

requirement of avoidance and would benefit from route designation in the Coyote subregion. No acquisition of private lands containing occupied habitat and a buffer area connecting the dry lakes would be undertaken. Potential impacts on Parish's phacelia would be determined on a case-by-case basis by San Bernardino County through the CEQA process. However, because of the remote areas of occurrence of Parish's phacelia and the lack of threats from land use changes, no adverse impacts are expected to this species for the duration of the West Mojave Plan.

Parish's Popcorn Flower: No conservation would be assured for Parish's popcorn flower. Discretionary development at the single known site would depend on mitigation measures imposed by the local jurisdiction. Because this is a wetland dependent plant and known to be very rare, it is likely that avoidance would be required by the wetland protection laws and the CEQA process. The surrounding uplands could be developed.

Salt Springs Checkerbloom: No conservation would be assured for the Salt Springs checkerbloom. Discretionary development at the single known site would depend on mitigation measures imposed by the local jurisdiction. Because this is a wetland dependent plant and known to be very rare, it is likely that avoidance would be required by the wetland protection laws and the CEQA process. The surrounding uplands could be developed.

Shockley's Rock-cress: Shockley's rock-cress is not threatened in the short term within the CDCA. Without a long-term protection plan, however, industrial mining is likely to impact this species and contribute to further fragmentation of the habitat. Establishment of a Research Natural Area ACEC in conjunction with similar measures by the Forest Service would ensure its long term survival. Impacts from Alternative B are similar to those of Alternative A except that important private land occurrences would not be addressed in detail. Assuming that the Carbonate Habitat Management Strategy is put into place, overall impacts to Shockley's rock-cress are reduced to acceptable levels and the goal of permanent protection would be achieved.

Short-joint Beavertail Cactus: Nearly all of the range of the short-joint beavertail cactus in the West Mojave could not be conserved under Alternative B. Loss of the populations in the San Gabriel and San Bernardino Mountains foothills on private lands would be expected from long-term fragmentation of the habitat by rural and some suburban development. This adverse impact would reduce the species' range to the higher elevations of the National Forests.

4.3.3 Socio-Economics

4.3.3.1 Livestock Grazing

Impacts would be as described for Alternative A.

4.3.3.2 Mineral Development

The forecast for mining and anticipated impacts on access and availability of mineral resources on public lands, including from proposed mineral withdrawals, under Alternative B would be the same as Alternative A. The impact on mineral resources identified on private lands depends on the location of the project in relation to sensitive species or conservation areas. Within conservation areas, the mining impacts on private land in the long term would be similar to Alterative A because federally acquired private lands and mineral resources within conservation areas would be withdrawn, limiting access and availability of these resources to development.

Impacts on mining on private land from projects in areas of sensitive species would be negative relative to Alternative A. Permitting costs would increase because separate incidental take permits would be required for each project, trapping for MGS would be required, CDFG's compensation requirement would remain in place, with an endowment fee of $295 per acre for MGS, and pre-approved and programmatic Level 1 and Level 2 BMPs would not be available. Impacts on projects on private lands in areas without sensitive species would be positive relative to Alternative A because compensation fees and other mitigation for species protection would not apply under the BLM-only alternative.

Private land would not be affected by expansion of the Rand Mountains-Fremont Valley ACEC because the designation affects public lands only. The few acres of private land in Section 22 (T.29 S, R.340 E), have moderate potential for the occurrences of mineral resources, which in this case, is vein or disseminated gold.

The portion of the Big Rock Creek sand and gravel deposit south of Highway 138 would not be part of a BLM conservation area because most, if not all of the land is under private ownership. Most constraints are placed on mining by the expanded SEA boundary proposed by Los Angeles County (PCR Services Corp., et al., 2000, p. 3). A single parcel of public land would, however, be retained, and management calls for a case-by-case review. The main conservation provision is that the stream flow must not be impeded by any aggregate mine

4.3.4 Cultural Resources

Since this alternative is essentially the same as Alternative A but applies only to BLM lands, and since the analysis for Alternative A covered primarily resources known to exist on BLM lands, the impacts of Alternative B would be substantially the same as those for Alternative A.

4.4 ALTERNATIVE C: TORTOISE RECOVERY PLAN

Impacts would be as described for Alternative A, except as discussed below.

4.4.1 Air Quality

Impacts would be as described for Alternative A, except as specifically noted below, in Table 4-50.

Table 4-50
Air Quality Impacts – Alternative C

ACTIVITY	POLLU-TANT	CHANGE DIRECTION	MAGNITUDE	TIME SCALE	LOCATION	NOTES
Vehicle restrictions (speed Limits)	PM_{10}	Decrease	Slight less than alternative "A"	Short & long term	Within DWMAs on BLM only	Reduced vehicle speeds would reduce particulate emissions
Vehicle competitive events	PM_{10}	Decrease	Slight less than alternative "A"	Short and long term	Within DWMAs	Elimination of competitive events would decrease particulate emissions.

4.4.2 Biological Resources

4.4.2.1 Natural Communities

Impacts to natural communities under Alternative C would be generally the same as described for Alternative A. Without a limitation on allowable new ground disturbance and the 5:1 mitigation ratio within the DWMAs, some land development could take place prior to acquisition of private inholdings, which would cause some habitat fragmentation. The cessation of grazing within the DWMAs would benefit the natural communities, particularly the blowsand areas east of Harper Lake. The acreage of each natural community that is protected by Alternative C is presented in Table 4-51.

Table 4-51
West Mojave Natural Communities Impacted by Alternative C (In Acres and %)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Alkali seep	59	0		0		0		59	(100)
Alkali sink scrub	10,895	1,014	(9.3)	4,138	(38.0)	5,152	(47.3)	5,743	(52.7)
Big sagebrush scrub	9,601	8,108	(84.5)	1,081	(11.3)	9,190	(95.7)	411	(4.3)
Blackbush scrub	132,603	87,343	(65.9)	7,545	(5.7)	94,888	(71.6)	37,715	(28.4)
Chamise chaparral	28,593	0		0		0		28,593	(100)
Cottonwood-willow riparian forest	11,533	6,793	(58.9)	1,571	(13.6)	8,364	(72.5)	3,170	(27.5)
Creosote bush scrub	4,025,617	459,004	(11.4)	1,348,625	(33.5)	1,807,629	(44.9)	2,217,987	(55.1)
Desert holly scrub	21,716	2,190	(10.1)	17,452	(80.4)	19,641	(90.4)	2,075	(9.6)
Desert wash scrub	34,496	4,902	(14.2)	3,518	(10.2)	8,421	(24.4)	26,075	(75.6)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Fan palm oasis	33	0		0		0		33	(100)
Freshwater seep	388	0		0		0		388	(100)
Gray pine-oak woodland	2,678	49	(1.8)	0		49	(1.8)	2,629	(98.2)
Greasewood scrub	3,662	0		1,947	(53.2)	1,947	(53.2)	1,715	(46.8)
Hopsage scrub	6	5	(83.3)	1	(16.7)	6	(100)	0	
Interior live oak woodland	589	0		0		0		589	(100)
Jeffrey pine forest	1,811	1,811	(100)	0		1,811	(100)	0	
Joshua tree woodland	10,383	4,763	(45.9)	269	(2.6)	5,032	(48.5)	5,351	(51.5)
Juniper woodland	87,167	6,960	(8.0)	1,434	(1.6)	8,395	(9.6)	78,772	(90.4)
Mesquite bosque	7,110	2,491	(35.0)	1,349	(19.0)	3,839	(54.0)	3,271	(46.0)
Mojave mixed woody scrub	689,589	378,795	(54.9)	124,710	(18.1)	503,505	(73.0)	186,084	(27.0)
Mojave riparian forest	4,687	28	(0.6)	0		28	(0.6)	4,659	(99.4)
Montane_meadow	966	0		0		0		966	(100)
Montane riparian scrub	2,228	203	(9.1)	238	(10.7)	441	(19.8)	1,787	(80.2)
Native grassland	3,375	0		68	(2.0)	68	(2.0)	3,306	(98.0)
Northern mixed chaparral	992	992	(100)	0		992	(100)	0	
Pinyon pine woodland	18,773	12,077	(64.3)	1,171	(6.2)	13,248	(70.6)	5,525	(29.4)
Pinyon-juniper woodland	158,329	84,581	(53.4)	12,022	(7.6)	96,603	(61.0)	61,727	39.0)
Rabbitbrush scrub	7,842	92	(1.2)	0		92	(1.2)	7,750	(98.8)
Scrub oak chaparral	36,385	23,106	(63.5)	0		23,106	(63.5)	13,279	(36.5)
Saltbush scrub	591,713	18,897	(3.2)	222,091	(37.5)	240,998	(40.7)	350,926	(59.3)
Semi-desert chaparral	128,230	3,855	(3.0)	5,156	(4.0)	9,010	(7.0)	119,220	(93.0)
Shadscale scrub	38,602	7,194	(18.6)	31,408	(81.4)	38,602	(100)	0	
TOTAL	6,070,651	1,115,253	(18.4)	1,785,793	(29.4)	2,901,046	(47.8)	3,169,605	(52.2)

The table excludes acreage in the GIS database describing landforms (lava, lakes, playas), disturbed lands (agriculture, urban) and disturbed plant communities (non-native grassland, ruderal).

Total in area excludes military lands.

Existing conservation includes ACECs, Wilderness, National Parks, State Parks, CDFG Ecological Reserves.

New conservation includes the HCA for this alternative. Los Angeles County SEAs are excluded.

Potential incidental take includes areas not under specific conservation and available for development or other use. Actual loss of these communities is dependent on location, development trends and land ownership.

4.4.2.2 Desert Tortoise

Excepting minor differences, Alternative C shares the same impacts associated with Alternative A for the following categories, which for the most part, are not reiterated in Table 4-52: BLM Management of Category I, II, & III Habitat, Plan Implementation, State Permitting, Maintaining Multiple Use Classes, 1% Allowable Ground Disturbance, BLM Management, BLM Land Tenure Adjustment (LTA), Motorized Vehicle Access, Agriculture, Commercial Filming, Construction Activities, Disease Management, Drought, Education Program, Energy & Mineral Development, Feral Dog Management, Fire Management, Sheep Grazing, Habitat Credit Component, Motorized Vehicle Access, Raven Management, Utilities, and Weed Control.

Table 4-52 presents a summary of the benefits and residual impacts of Alternative C.

Table 4-52
Tortoise Impacts of Alternative C

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
Recent and Current Tortoise Occurrence **Includes**: • 2,307 mi^2 (21% of the 2002 range) • Good representation in central part of 2002 range • 427 of 563 mi^2 (76%) of higher density areas • 289 of 424 (68%) observed tortoises • 2,115 mi^2 (96%) of USFWS critical habitat • 856 mi^2 of BLM Category I (96%) and 317 mi^2 of Category II (87%) habitats	Recent and Current Tortoise Occurrence **Does not include**: • 8,827 mi^2 (79%) of the 2002 range • Poor representation in periphery of range • 136 mi^2 (24%) of higher density areas • 135 of 424 (32%) observed tortoises • 90 mi^2 (4%) of USFWS critical habitat • 38 mi^2 of BLM Category I (4%) and 47 mi^2 of Category II (13%) habitats
Land Management Within DWMAs • Would result in three or four new reserve managers, additional staff, and law enforcement personnel, which would provide for enhanced implementation of DWMA-specific management actions • Formation of local advisory committees would provide for oversight, which would facilitate conservation management	Land Management Within DWMAs • Proposal would require more funding than identified in Alternative A
Land Management Adjacent to DWMAs	Land Management Adjacent to DWMAs • Alternative would fail to establish BTAs, SRAs, or substantive management actions in areas adjacent to DWMAs, which would do nothing to minimize and mitigate take outside DWMAs or reduce indirect impacts to them
DESIGNATION AND MANAGEMENT OF DWMAS AS ACECS	
Size Relative to the Existing Tortoise ACEC • Net increase of 1,555 mi^2 of public lands within ACECs, which is 39 times larger than the existing one (DTNA at 40 mi^2)	Critical Habitat versus New DWMAs • As in Alternative A, would fail to clarify future management of critical habitat lands outside DWMAs and non-critical habitat inside them
BLM ACEC Management • Designating the Ord-Rodman DWMA as an ecological reserve and a research natural area, would further clarify conservation management by the BLM; ecological reserve status would result in more restrictive management than provided for under ACEC management	BLM ACEC Management

BENEFITS	RESIDUAL IMPACTS
Federal Permitting • Same as Alternative A, with following differences: • No Survey Areas would not be designated, which would require surveys in areas where they would provide minimal benefits to tortoises • Would provide for a drop-off site for unwanted captive tortoises at BLM's Barstow offices, and develop programs to promote use of unwanted tortoises for research and educational purposes, which would be intended to minimize release of pets, including diseased animals • Would function to salvage breeding stock from BLM open areas to supplement populations in DWMAs, which would ostensibly minimize (i.e., salvage) and mitigate (i.e., supplement) impacts	Federal Permitting • Same as Alternative A, with following differences: • Failure to establish No Survey Areas would result in relatively fewer benefits and more costs to project proponents • Drop-off sites and other programs directed at owners of pet tortoises would not substantially curtail releases by informed (i.e., who know they should not release tortoises) and uninformed (i.e., who are unaware they should not release animals) owners • Experimental program that would assess, but not necessarily result in, efficacy of translocation; would increase the risk of introducing diseased animals from BLM open areas into DWMA conservation areas
Compensation & Fee Structure • All compensation, fee and implementation structures proposed by Alternative A apply to this alternative, except as expressly noted in the discussion of species conservation measures (section 2.4.4, below)	Compensation & Fee Structure
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
Acquisition Priorities • Would have the goal of acquiring all private lands in DWMAs, which would substantially facilitate conservation programs and BLM management • Although cost prohibitive as given to the right, would allow for strengthened adaptive management to re-establish tortoises in die-off areas and facilitate many other conservation programs	Acquisition Priorities • Prioritizes limited funding to acquire lands, which could substantially reduce funding conservation programs • Assuming a purchase price of $500/acre, acquisition of all DWMA private lands (i.e., estimated at 664 mi^2) would cost $212,480,000 • Failure to acquire all private lands would result in withdrawal of take authorization, unless the amount of acquired land per year were specified; success of obtaining ALL private lands is highly unlikely, and may not contribute substantially to tortoise conservation
Education • Same as Alternative A, with following specified actions: • Each DWMA would have an associated visitor center or set of interpretive sites and panels; • A visitor education center would be constructed at the DTNA; • Programs would be developed to promote use of unwanted captives for research and educational purposes, all of which would enhance the program	Education • Although the programs given to the left would be useful, they would fail to reach the broader public, as would occur under the education program envisioned in Alternative A
CATTLE GRAZING ON BLM ALLOTMENTS	

BENEFITS	RESIDUAL IMPACTS
• Measures identified in Alternative A would apply to the Ord Mtn Allotment, which would also be designated as a grazing experimental management zone; an Avery-like study would be completed within five years of plan adoption to determine the competitive threshold between cattle and tortoises; in the interim, the 230 pound threshold would be used • No cattle grazing would be authorized in the Harper Lake, Cronese Lakes, or Pilot Knob allotments, which would avoid adverse impacts identified in Alternative A	• Alternative fails to provide for relinquishment of allotments outside DWMAs where tortoises would continue to be affected
GUZZLERS	
	• Alternative fails to identify how existing impacts of guzzlers would be assessed and remedied, which is a marginal impact
HEAD STARTING PROGRAM	
• Same as Alternative A, except the program would be established at the DTNA rather than near Fremont Peak, which has the advantages of introducing hatchlings into a fenced area, and allowing salvage of females from adjacent high human-use areas near California City	• Would fail to reintroduce tortoises in older die-off areas in the northern portions of the Fremont-Kramer DWMA, where numbers of tortoises have been substantially reduced • Would not provide for increased raven management, which would be necessary where subadult tortoise would be introduced
LAW ENFORCEMENT	
• Same as Alternative A, with additional actions: • Installing a double row of barrier fencing between the Fremont-Kramer and Superior-Cronese DWMAs could minimize the spread of disease, but possibly not (see right). Use of these fences, as described in Alternative F, may be efficacious in preventing spread of disease, pending input from pertinent experts • Would result in fence installation adjacent to Barstow, north of Barstow, Kramer Junction, California City, Cantil, Galileo Hill, Randsburg, Johannesburg, Atolia, Helendale, and periphery of Superior-Cronese DWMA, which would ostensibly result in fewer impacts from adjacent areas from west to east • Would result in signing Ord-Rodman DWMA boundaries in the vicinity of Barstow, Newberry Springs, Lucerne, Landers and Lucerne Valley	• Same as Alternative A, with following additions: • Installing a double row of barrier fencing between the Fremont-Kramer and Superior-Cronese DWMAs to minimize the spread of disease may not be effective, since it appears that the disease is already located east and west of where this fence would be installed • Significant cost increase over Alternative A due to fence installation and maintenance costs, the latter of which would be required in perpetuity • Would fail to result in signing of other three DWMA boundaries, as ALL DWMA boundaries would be signed in appropriate places under Alternative A
RECREATION ACTIVITIES	

BENEFITS	RESIDUAL IMPACTS
• Same as Alternative A, except no competitive or organized vehicle events would be allowed in DWMAs, which would eliminate impacts associated with competitive corridors in the Ord-Rodman DWMA and dual sports throughout	• All available information indicates that there are very few impacts to tortoises and habitat associated with dual sports and regulated use (i.e., under yellow-flag conditions) of competitive event corridors, while the proposal to eliminate these uses would result in significant effects upon OHV recreation (see discussion below) and undermine public support of the conservation strategy, which is required to be successful
Gunshot Impacts • Shooting in DWMAs would be restricted to between September and February, which would substantially diminish the incidence of gun shot mortality of tortoises[12] • Problems identified relative to availability of BLM law enforcement would persist, and could result in insufficient enforcement of this measure • If law enforcement issues could be resolved and result in increased and focused enforcement in DWMAs, the seasonal restriction would constitute a significant beneficial impact to avoid gunshot mortality, compared to Alternative A	Gunshot Impacts • Proposal would not likely be acceptable to the hunting and target shooting community, which would undermine the effectiveness of the strategy by failing to garner broad public support
TRANSPORTATION	
• Same as Alternative A, except that fencing program would be expanded to include about 380 linear miles[13] of additional fencing along Randsburg-Mojave Road (32 miles), Red Rock - Randsburg Road (18), Red Rock - Garlock Road (40), railroad north and adjacent to Highway 58 (142), Highway 247 (32), Interstate 15 (already fenced, so 0 miles), Fort Irwin Road (48), Manix Trail (34), and Copper City Road (34)	• There are no data to show that these roads (i.e., particularly dirt roads) warrant expenditure of funds that may best be used for other programs, which could substantially affect the overall conservation strategy that would already rely on limited funding
• Recovery Plan also recommends fencing 104 linear miles corresponding to the northern boundary of the Superior-Cronese DWMA, which would be very useful where it coincides with the Fort Irwin expansion area, but not in other places to the west (see right)	• Those portions of the northern boundary of the Superior-Cronese that are contiguous with China Lake NAWS would not need to be fenced; there is already an existing fence along much of this stretch, and there is little ground traffic at China Lake that would affect the conservation area to the south

Overall, the Recovery Plan alternative would result in a conservation program that would be inferior to the one given in Alternative A. The only two programs that are considered to provide for

[12] This conclusion is based on the assumption that tortoises are more likely to be encountered and shot between February and September, and that the new regulation would allow enforcement rangers to issue citations to anyone discharging firearms during the restriction period. This would not affect hunting activities between September and February, when bird hunting and other seasons are open.

[13] The linear miles given above were calculated by taking the length of each road cited in the recovery plan, where contiguous to DWMAs, and multiplying those lengths by two, since both sides of the roads would be fenced. This also assumes that both sides of the railroad north of Highway 58 would be fenced.

more conservation than Alternative A include (a) elimination of cattle grazing from the Fremont-Kramer and Superior-Cronese DWMAs and (b) prohibition of competitive and organized sports in DWMAs.

The following programs significantly detract from Alternative C for the reasons given in the above table and described below. The Recovery Plan indicates that a minimum of three DWMAs would be acceptable, whereas four would be required under Alternative A. This alternative would require funding that is significantly higher than most alternatives, not all of which is justified. Acquiring all private lands in DWMAs could cost as much as $219,000,000; employing separate managers and staff for each DWMA (as opposed to one Implementation Team overseeing the program) would not necessarily result in better management but would cost more; significantly more money would be needed to fence dirt roads where no data support the expenditure. Limited funding could be applied to these programs at the expense of implementing others.

In general, the Recovery Plan focuses on proactive conservation programs that would be implemented in DWMAs and fails to address a multitude of impacts outside DWMAs. For example, Alternative C would be less effective in minimizing external indirect impacts to DWMAs (i.e., no BTAs established) and direct impacts in the ITA (e.g., no SRAs established). The Recovery Plan was general in nature and did not expressly provide for numerous programs identified in Alternative A that were inserted into Alternative C to "fill holes". Had these programs not been carried over from Alternative A, Alternative C would be far more deficient. As it is, the deficiencies identified above would persist in spite of the augmentation of Recovery Plan provisions that has occurred in this analysis.

4.4.2.3 Mohave Ground Squirrel

Alternative C would implement protective measures identified in the Recovery Plan and reiterated in Alternative C for the tortoise. These measures would apply to MGS conservation in the MGS CA and the two DWMAs on both public and private lands.

Similar impacts given for the tortoise and/or MGS (mostly in Alternative A for the two species) would affect the following programs where the two species ranges coincide: Incidental Take Authorization; Compensation and Fee Structure; 1 % Allowable Ground Disturbance; Best Management Practices; HMP Instead of ACEC Designation; Category I, II, & III and Critical Habitats for Tortoises; Conservation Relative to Military Bases; Commercial Filming and Plant Harvest; Fire Management; Habitat Credit Component; Raven Management Plan; Utilities Construction and Maintenance; Livestock Grazing; Surveys (Presence-Absence Surveys, Exploratory Surveys, Surveys for Other Species;) Road Maintenance; and Monitoring.

Table 4-53 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under Alternative A for the tortoise. As such, the programs listed above are not reiterated in the table.

Table 4-53
Mohave Ground Squirrel Impacts

BENEFITS	RESIDUAL IMPACTS
Conservation Area Size of Conservation and Incidental Take Areas • Same as MGS Alternative A.	Conservation Area Size of Conservation and Incidental Take Areas
Specified Conservation Areas Outside MGS CA Biological Transition Areas (BTAs)	Specified Conservation Areas Outside MGS CA Biological Transition Areas (BTAs) • Failure to designate BTAs could result in more indirect impacts from development outside the two DWMAs and the MGS CA, as given in Alternative B, above
Specified Conservation Areas Outside MGS CA Los Angeles County Significant Ecological Area • Same as given above for Alternative B. Sierra Foothills Habitat Connector	Specified Conservation Areas Outside MGS CA Los Angeles County Significant Ecological Area Sierra Foothills Habitat Connector • Failure to establish this connector within the MGS CA may lead to compromising a critically important habitat corridor unless there is heightened county review.
Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas • See analogous section in MGS Alternative A, above	Specified Conservation Areas Outside the MGS CA Species-specific Conservation Areas
Management Structure within the MGS CA DWMA Management within the MGS CA • Conservation areas that would benefit the MGS include the two DWMAs, the MGS CA, and the new species-specific conservation areas listed above in MGS Alternative A.	Management Structure within the MGS CA DWMA Management within the MGS CA
Management Structure within the MGS CA Multiple Use Class Designations • BLM multiple use class changes would be as described for Alternative A and have the same beneficial impacts. Impacts are not likely to be as significant as for the tortoise, for example, since 1,524 mi^2 within the MGS CA (57%) are already designated as class L.	Management Structure within the MGS CA Multiple Use Class Designations • Same as MGS Alternative A.
Miscellaneous Conservation Programs Dump Removal and Waste Management • (AC-9) The intent to cleanup surface toxic chemicals, unexploded ordinance, and illegal dumps in the two DWMAs would likely benefit MGS conservation, but to what extent is unknown, as these measures would be implemented relative to managing tortoise predators. • (AC-9) Eliminating predator use of authorized landfills and sewage ponds and prohibiting new landfills or sewage ponds in or near DWMAs has questionable conservation value for the MGS, as these predators (both ravens and canines) have not been identified as predators of the MGS.	Miscellaneous Conservation Programs Dump Removal and Waste Management

BENEFITS	RESIDUAL IMPACTS
Miscellaneous Conservation Programs Education • (AC-23) The establishment of visitor centers and interpretive sites and panels would be even more important for the MGS than it would be for the tortoise. The tortoise is a relatively high profile animal; few people are aware of the MGS, so the education for the MGS would necessarily need to be even more prevalent if MGS conservation is to succeed.	Miscellaneous Conservation Programs Education • Same as MGS Alternative A.
Miscellaneous Conservation Programs Feral Dog Management Plan • (AC-8) There is no indication that implementing emergency measures to control unleashed dogs and dog packs in the two DWMAs would benefit MGS conservation.	Miscellaneous Conservation Programs Feral Dog Management Plan
Miscellaneous Conservation Programs Habitat Reclamation and Restoration • (AC-1) Restoring surface disturbance within the two DWMAs and MGS CA, closing access to non-designated vehicle routes, and restoring non-designated roadbeds to their pre-disturbance state would all benefit MGS conservation by regaining habitats and minimizing more habitat degradation.	Miscellaneous Conservation Programs Habitat Reclamation and Restoration
Miscellaneous Conservation Programs Land Acquisition • (AC-19) The goal of the plan to acquire all private lands within the two DWMAs would constitute a significant beneficial impact, as maintaining large blocks of unfragmented habitat would be essential (Gustafson 1993).	Miscellaneous Conservation Programs Land Acquisition
Miscellaneous Conservation Programs Law Enforcement • (AC-23) The intent to require a reserve manager, additional staff, and law enforcement personnel for the two DWMAs would not be as beneficial to MGS conservation as it would be for the tortoise, given the different threats that affect the two species.	Miscellaneous Conservation Programs Law Enforcement • Costs of these programs may be cost prohibitive with little return, as given to the left.
Miscellaneous Conservation Programs Mining • (AC-6) The allowance for mining on a case by case basis in the two DWMAs would be mitigated during operation and require restoration to pre-disturbance conditions, both of which would benefit MGS conservation. • (AC-6) Requirements to restore surface disturbance within the two DWMAs to pre-disturbance conditions at open pit mines and hard rock quarries would benefit MGS conservation. • (AC-6) The intent to pursue mineral withdrawals identified by MGS Alternative A in the Rand Mountains would benefit MGS conservation if withdrawals, as required by the ACEC management plan, are actually implemented.	Miscellaneous Conservation Programs Mining

BENEFITS	RESIDUAL IMPACTS
Miscellaneous Conservation Programs Signing and Fencing DWMAs • (AC-15) The intent to sign or fence the two DWMA boundaries adjacent to communities and settlements would have the beneficial impact of informing the public that they are entering a conservation area for both tortoises and the MGS.	Miscellaneous Conservation Programs Signing and Fencing DWMAs • Expensive program may do little to protect habitats, although, as given to the left, the educational benefits would help.
Motorized Vehicle Access • (AC-25) Restoring designated closed routes to their pre-disturbance condition, limiting travel to safe speeds on designated signed routes, and implementing closures in the two DWMAs would have the beneficial impact of minimizing occasional road-kills and habitat degradation. • (AC-26) Prohibiting the establishment of new roads in the two DWMAs would be particularly important to MGS conservation, in the interest of avoiding new habitat fragmentation.	Motorized Vehicle Access
Recreation Competitive Events • (AC-2) Prohibiting all competitive events from the two DWMAs would constitute a beneficial impact by minimizing the amount of habitat degradation typically associated with these activities.	Recreation Competitive Events
Recreation Non-competitive Events (Dual Sports) • (AC-2) Prohibiting organized events (including dual sport) from the two DWMAs would constitute a marginal or neutral benefit, as dual sports are not likely to result in either habitat degradation or crushing individual MGS.	Recreation Non-competitive Events (Dual Sports)
Recreation Hunting and Shooting • (AC-5) The prohibition against firearm discharge in the two DWMAs between September and February would not contribute significantly to MGS conservation, as there is no evidence that this activity poses a threat to the MGS.	Recreation Hunting and Shooting
Recreation Stopping, Parking, and Camping • (AC-3) Restricting parking and camping to designated areas within DWMAs would provide for relatively less habitat degradation. • (AC-4) Minimum impact recreation (e.g. hiking, equestrian uses, birdwatching, and photography) that would be allowed for in the two DWMAs would not significantly impair MGS conservation.	Recreation Stopping, Parking, and Camping • (AC-3) Restricting parking and camping to within 300 feet from the centerline of open routes outside the two DWMAs would be a somewhat more negative impact, as this would include the portion of the MGS CA that does not overlap with the DWMAs.
Transportation Highway Fencing and Culverts • (AC-14) The intent to fence roadways and install culverts for tortoise conservation likely would have minimal benefits to the MGS, as they would neither serve to restrict MGS movement nor minimize habitat fragmentation.	Transportation Highway Fencing and Culverts

The same discussion following the MGS table in Alternative A applies to Alternative C, except for those portions of the MGS CA that overlap the tortoise DWMAs. MGS would receive a modest

degree of additional protection in these areas, compared to Alternative A, due to the prohibition of competitive motorized vehicle activities, somewhat more restrictive stopping, parking and camping prescriptions, the requirement that new ground disturbance be restored, and the acquisition of all private lands within the DWMAs (to the extent that diversion of available funds for this purpose did not preclude implementation of other protective actions).

4.4.2.4 Bats

Impacts to bats would be as described for Alternative A.

4.4.2.5 Other Mammals

Impacts to other mammals (bighorn sheep, Mojave River vole, and yellow-eared pocket mouse) would be as described for Alternative A.

4.4.2.6 Birds

All covered bird species found outside the DWMAs would experience the same impacts as Alternative A.

Within the DWMAs, most birds would be well protected, with no substantial change from Alternative A. Cessation of grazing may provide a small additional benefit to burrowing owl and LeConte's thrasher, since these species nest on or near the ground where livestock impacts from trampling take place. The habitat within the DWMAs would not be subject to the 1% limitation on new allowable ground disturbance, nor would the 5:1 mitigation ratio apply, which could lead to habitat fragmentation prior to acquisition of private land. No conservation area would be established for Bendire's thrasher on Coolgardie Mesa. However, route designation for the Superior subregion and acquisition of private land under this Alternative would provide equal or better conservation for Bendire's thrasher because of uniform management by a public agency.

4.4.2.7 Reptiles

Mojave fringe-toed lizards would benefit from cessation of grazing in the Harper Lake and Cronese Lake allotments. Populations on the Alvord slope would benefit from acquisition of private lands. The blowsand habitat within the DWMAs would not be subject to the 1% limitation on new allowable ground disturbance, nor would the 5:1 mitigation ratio apply.

Impacts to other populations of the Mojave fringe-toed lizard would be as desribed for Alternative A.

Impacts on the Panamint alligator lizard, the San Diego horned lizard and the southwestern pond turtle would be as described for Alternative A.

4.4.2.8 Plants

For the following plants, impacts would be the same as described for Alternative A: alkali mariposa lily, carbonate endemic plants, Charlotte's phacelia, flax-like monardella, Kelso Creek monkeyflower, Kern buckwheat, Little San Bernardino Mountains gilia, Mojave tarplant, Parish's alkali grass, Parish's popcorn flower, Red Rock poppy, Red Rock tarplant, Reveal's buckwheat, Salt Springs checkerbloom, Shockley's rock cress, short-joint beavertail cactus, triple-ribbed milkvetch, and white-margined beardtongue.

Barstow Woolly Sunflower: Barstow woolly sunflower would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Fremont-Kramer and Superior-Cronese DWMAs. Cessation of grazing would probably be a beneficial impact. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect. Acquisition of private lands within the DWMAs would benefit Barstow woolly sunflower by consolidating management for the species.

Outside the DWMAs, the provisions of the HCP would apply, enabling conservation of Barstow woolly sunflower within the North Edwards Conservation Area. Protection of this area would augment conservation in the DWMA and secure nearly all of the known occurrences. No adverse impacts are expected to this species under Alternative C for the duration of the West Mojave Plan.

Crucifixion Thorn: Crucifixion thorn would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Superior-Cronese DWMA. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect. The public land measures and the lack of threats to crucifixion thorn on private land means no adverse impacts are expected to this species for the duration of the West Mojave Plan under Alternative C.

Desert Cymopterus: Desert cymopterus would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Fremont-Kramer and Superior-Cronese DWMAs. The cessation of cattle grazing in the Harper Lake allotment would be a significant benefit to the species. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect. The conservation measures on public lands combined with the lack of threats on private lands would provide sufficient conservation within the DWMAs for desert cymopterus.

Outside the DWMAs, the provisions of the HCP would apply, enabling conservation of desert cymopterus within the North Edwards Conservation Area. Protection of this area would augment conservation in the DWMA and secure nearly all of the known cymopterus locations. No adverse impacts are expected to this species under Alternative C for the duration of the West Mojave Plan.

Lane Mountain Milk vetch: The Recovery Plan Alternative would attempt greater private land acquisition than Alternative A on Coolgardie Mesa, providing a buffer to the occupied habitat of Lane Mountain milkvetch. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect.

No significant or adverse impacts to Lane Mountain milkvetch would result in the short term from implementation of Alternative C.

Mojave Monkeyflower: A portion of the Mojave monkeyflower habitat would lie within the Ord-Rodman Research Natural Area. Additional acquisition of private lands in this area would benefit the Mojave monkeyflower. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect. Effects of an experimental grazing program for the Ord allotment cannot be determined. Given the conservation measures required by utilities using the corridor and the lack of threats from changing land uses on private land near Daggett Ridge the eastern population of Mojave monkeyflowers should be sufficiently protected from loss of habitat. Combined with the BLM actions in the Brisbane Valley to protect a core reserve, no adverse or significant impacts to Mojave monkeyflower are expected over the life of the West Mojave Plan under Alternative C.

Parish's Phacelia: Parish's phacelia would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Superior-Cronese DWMA. However, no 1% limitation on allowable ground disturbance would apply, nor would the 5:1 mitigation ratio be in effect. Private land acquisition within the Superior-Cronese DWMA would benefit the species. The conservation measures on public lands combined with the lack of threats on private lands mean that no adverse impacts are expected to this species under Alternative C for the duration of the West Mojave Plan.

4.4.3 Socio-Economics

4.4.3.1 Livestock Grazing

Impacts on livestock grazing would be as described for Alternative A, with the exception of cattle grazing in DWMAs.

Within DWMAs, cattle grazing would be prohibited from the proposed DWMAs described in the Desert Tortoise Recovery Plan. This would affect portions of the Ord Mountain, Cronese Lake, Harper Lake, and the Pilot Knob Allotments, which together offer 4,232 animal unit months of forage. The impacts on the grazing operations on these four allotments would vary considerably depending on current operations:

- The Pilot Knob Allotment is leased to a conservation organization that has never applied for grazing use, even when forage conditions were favorable. Impacts of this alternative would be minimal.

- The Ord Mountain Allotment is almost entirely within the proposed Ord-Rodman DWMA. It has the largest permitted use (3,632 AUMs) and most extensive grazing operation of the four allotments. Even though it would be designated as a cattle grazing experimental management zone, the impacts on the grazing operation could be much more extensive than on the Pilot Knob Allotment, depending on the nature of the "experimental management" program that was developed and implemented. The portion of the allotment that lies outside the DWMA may not be viable standing alone, because it has no developed water.
- Harper Lake Allotment impacts would be significant. Approximately two-thirds of the allotment would be excluded from cattle grazing. The southern third of this allotment is outside the DWMA, but has a marginal forage base and would not be viable by itself.
- The Cronese Lake Allotment would loose approximately half of its current acreage, however due to the lack of water in that portion of the allotment within the proposed DWMA (western half) the impact to this cattle operation would be minimal.

4.4.3.2 Mineral Development

The requirement to restore surface disturbance to pre-disturbance conditions would virtually shut down hard-rock mining within the 2,147 square miles of tortoise DWMAs, which have nearly 300,000 acres of moderate to high mineral potential. This impact would occur when existing SMARA Plans expire and new plans are applied for. Most SMARA Plans expire in 20 years so the impact on mining would come into play prior to the expiration of the West Mojave Plan. New operations would be required to import material from a source outside of the tortoise management area and place it in the pits and quarries to fill the void left from the mined-out material, something that is not generally feasible from an economic standpoint. In most cases, the expense from purchasing replacement material and securing permits to mine that material would be greater than that for mining the original product.

Further, it would probably require either artificial watering, or decades or centuries for natural vegetation to be restored to original diversity and density in the desert environment. Although sand and gravel pits could probably be restored, it would require a much longer span of time before restoration would be complete and the operator released from the period of liability.

About eight active mines are known to be operating within the proposed DWMAs. Impacts on the consumer would be added costs to import minerals such as landscaping rock from outside of DWMAs, or doing without certain types of rock, popular with consumers in the southwestern United States.

Mohave ground squirrel habitat would not be subject to the one percent AGD. However, this area would be subject to expensive and time-consuming delays to satisfy increased studies and mitigation associated with operation reviews as compared with Alternative A.

Otherwise, impacts would be similar to Alternative A.

4.4.4 Cultural Resources

Since this alternative includes the same DWMAs and the same motorized vehicle access provisions the impacts would be substantially the same as in Alternative A.

4.4.5 Cumulative Impacts

Livestock Grazing: Cumulative impacts would be similar to Alternative A. Cattle grazing would not be permitted in critical habitat on the Harper Lake (11,275 acres) and Cronese Lake (30,000 acres) allotments, and would be limited to an "experimental management" program on the Ord Mountain allotment (102,141 acres). There would also be the remaining portions of these allotments that may not be viable enough to have any grazing continue. This would increase the cumulative effects for this alternative by approximately 143,416 acres.

Minerals: Negative cumulative impacts from this alternative would be greater than those of Alternatives A and B because of the restoration requirement, and associated high costs which would render many surface disturbing mining projects uneconomic. This would remove otherwise valuable minerals from the market, costing jobs, tax base, and mine related purchases form the local communities.

Biological Resources: The Recovery Plan Alternative is well designed to prevent cumulative impacts to biological resources within the DWMAS, with the exception of potential impacts from small-scale mining. The lack of a limitation on new allowable ground disturbance and the disincentive 5:1 mitigation ratio could allow private land development in some parts of the DWMAs prior to acquisition, however.

Outside the DWMAs, cumulative impacts to biological resources would be as described for Alternative A.

4.5 ALTERNATIVE D: ENHANCED ECOSYSTEM PROTECTION

Impacts would be as described for Alternative A, except as described below.

4.5.1 Air Quality

Impacts would be as described for Alternative A above, except as specifically noted below, in Table 4-54.

Table 4-54
Air Quality Impacts – Alternative D

ACTIVITY	POLLU-TANT	CHANGE DIRECTION	MAGNITUDE	TIME SCALE	LOCATION(S)	NOTES
Vehicle routes	PM_{10}	Decrease	Slight	Short & long term	Johnson to Stoddard Valley area	Due to elimination of vehicle corridor
Vehicle restrictions	PM_{10}	Decrease	Slight	Short & long term	Within biologically sensitive areas	Due to requirement for street legal vehicles.

4.5.2 Biological Resources

4.5.2.1 Natural Communities

Alternative D approaches conservation of the covered species by protection of ecosystems, rather than an emphasis on preservation and management of known species locations. It therefore represents a more beneficial impact to natural communities than the species-based approach. The restriction of certain MAZ areas within DWMAs to street-legal vehicles would probably beneficially impact the most common creosote bush scrub and saltbush communities in those areas by preventing degradation of the surface by off-road travel. Additional acreage of the scrub oak, pinyon pine and juniper communities on private land adjacent to streams draining the San Gabriel Mountains would be protected under Alternative D.

Mineral withdrawals under Alternative D would remove the potential threat of fragmentation of Mojave mixed woody scrub in the proposed carbonate endemics ACEC. The same is true for the Coolgardie Mesa and west Paradise Valley conservation areas. Implementation of the CHMS and consultation procedures and CEQA review for these areas, however, may result in the same level of protection from new mining.

The acreage of each natural community that is protected by Alternative D is presented in Table 4-55.

Table 4-55
West Mojave Natural Communities Impacted by Alternative D (In Acres and %)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Alkali seep	59	0		0		0		59	(100)
Alkali sink scrub	10,895	1,014	(9.3)	4,138	(38.0)	5,152	(47.3)	5,743	(52.7)
Big sagebrush scrub	9,601	8,108	(84.5)	1,081	(11.3)	9,190	(95.7)	411	(4.3)
Blackbush scrub	132,603	87,343	(65.9)	7,545	(5.7)	94,888	(71.6)	37,715	(28.4)
Chamise chaparral	28,593	0		0		0		28,593	(100)

Cottonwood-willow riparian forest	11,533	6,793	(58.9)	1,571	(13.6)	8,364	(72.5)	3,170	(27.5)
Creosote bush scrub	4,025,617	459,004	(11.4)	1,320,049	(32.8)	1,779,053	(44.2)	2,246,563	(55.8)
Desert holly scrub	21,716	2,190	(10.1)	17,452	(80.4)	19,641	(90.4)	2,075	(9.6)
Desert wash scrub	34,496	4902	(14.2)	3,518	(10.2)	8,421	(24.4)	26,075	(75.6)
Fan palm oasis	33		0		0		0	33	(100)
Freshwater seep	388		0		0		0	388	(100)
Gray pine-oak woodland	2,678	49	(1.8)		0	49	(1.8)	2,629	(98.2)
Greasewood scrub	3,662		0	1,947	(53.2)	1,947	(53.2)	1,715	(46.8)
Hopsage scrub	6	5	(83.3)	1	(16.7)	6	(100)		0
Interior live oak woodland	589		0		0		0	589	(100)
Jeffrey pine forest	1,811	1,811	(100)		0	1,811	(100)		0
Joshua tree woodland	10,383	4,763	(45.9)	269	(2.6)	5,032	(48.5)	5,351	(51.5)
Juniper woodland	87,167	6,960	(8.0)	1,434	(1.6)	8,395	(9.6)	78,772	(90.4)
Mesquite bosque	7,110	2,491	(35.0)	1,349	(19.0)	3,839	(54.0)	3,271	(46.0)
Mojave mixed woody scrub	689,589	378,795	(54.9)	124,710	(18.1)	503,505	(73.0)	186,084	(27.0)
Mojave riparian forest	4,687	28	(0.6)		0	28	(0.6)	4,659	(99.4)
Montane meadow	966		0		0		0	966	(100)
Montane riparian scrub	2,228	203	(9.1)	238	(10.7)	441	(19.8)	1,787	(80.2)
Native grassland	3,375		0	68	(2.0)	68	(2.0)	3,306	(98.0)
Northern mixed chaparral	992	992	(100)		0	992	(100)		0
Pinyon pine woodland	18,773	12,077	(64.3)	1,171	(6.2)	13,248	(70.6)	5,525	(29.4)
Pinyon-juniper woodland	158,329	84,581	(53.4)	12,022	(7.6)	96,603	(61.0)	61,727	39.0)
Rabbitbrush scrub	7,842	92	(1.2)		0	92	(1.2)	7,750	(98.8)
Scrub oak chaparral	36,385	23,106	(63.5)		0	23,106	(63.5)	13,279	(36.5)
Saltbush scrub	591,713	18,897	(3.2)	218,608	(36.9)	237,505	(40.1)	354,409	(59.9)
Semi-desert chaparral	128,230	3,855	(3.0)	5,156	(4.0)	9,010	(7.0)	119,220	(93.0)
Shadscale scrub	38,602	7,194	(18.6)	31,408	(81.4)	38,602	(100)		0
TOTAL	6,070,651	1,115,253	(18.4)	1,753,734	(28.9)	2,868,987	(47.3)	3,201,664	(52.7)

The table excludes acreage in the GIS database describing landforms (lava, lakes, playas), disturbed lands (agriculture, urban) and disturbed plant communities (non-native grassland, ruderal).

Total in area excludes military lands.

Existing conservation includes ACECs, Wilderness, National Parks, State Parks, CDFG Ecological Reserves.

New conservation includes the HCA for this alternative. Los Angeles County SEAs are excluded.

Potential incidental take includes areas not under specific conservation and available for development or other use. Actual loss of these communities is dependent on location, development trends and land ownership.

4.5.2.2 Desert Tortoise

Excepting minor differences, Alternative D shares the same impacts associated with Alternatives A and C for the following categories, which for the most part, are not reiterated in Table 4-56: BLM ACEC Management, BLM Management of Category I, II, & III Habitat, Plan Implementation, Federal Permitting, State Permitting, 1% AGD, BLM Management, BLM Land Tenure Adjustment (LTA), Education, Energy & Mineral Development, Feral Dog Management, Guzzlers, Law Enforcement, Commercial Filming, Plant Harvest, Raven Management, Sheep Grazing, and Weed Control.

Table 4-56

Tortoise Impacts of Alternative D

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
Expanded DWMAs • Result in adding 68 mi^2 to Alternative A DWMAs, for a total DWMA size of 2,371 mi^2: • 19 mi^2 of critical habitat to the Fremont-Kramer DWMA, located south of Alternative A's DWMA • 17 mi^2 to the Ord-Rodman DWMA north of the Johnson Valley Open Area, would serve to alleviate potential management conflicts in this undesignated area between the DWMA and open area • 25 mi^2 to Fremont-Kramer DWMA, located north of Highway 58 and between Highway 395 and the Kern County line • 7 mi^2 to the Superior-Cronese DWMA, located between Silver Lakes and Iron Mountains, which would capture some higher density areas, and include 7 mi^2 of BLM managed lands • Only the Iron Mountains expansion would encompass higher density tortoise areas, but all would allow for changes in land management that would begin to recover habitats for eventual repatriation	Expanded DWMAs • Expanding the Fremont-Kramer DWMA to the south would require purchase or conservation management of 18 mi^2 of private lands • Expansion of the Ord-Rodman DWMA would incorporate a rugged mountain that is not particularly suitable tortoise habitat • Expanding the Fremont-Kramer DWMA to the county line west of Highway 395 would encompass 25 mi^2 of marginal habitats that are extremely degraded by sheep grazing; this small area would be isolated from the portion of the DWMA east of Highway 395, as 395 would be fenced; and would require the purchase or conservation management of 5 mi^2 of private land west of Highway 395
Recent and Current Tortoise Occurrence **Includes**: • 2,371 mi^2 (21% of the 2002 range) within *four* DWMAs • Good representation in central part of 2002 range • 427 of 563 mi^2 (76%) of higher density areas • 290 of 424 (68%) observed tortoises • 2,139 mi^2 (97%) of USFWS critical habitat • 856 mi^2 of BLM Category I (96%) and 317 mi^2 of Category II (87%) habitats	Recent and Current Tortoise Occurrence **Does not include**: • 8,763 mi^2 (79%) of the 2002 range • Poor representation in periphery of range • 136 mi^2 (24%) of higher density areas • 134 of 424 (32%) observed tortoises • 65 mi^2 (3%) of USFWS critical habitat • 38 mi^2 of BLM Category I (4%) and 47 mi^2 of Category II (13%) habitats
Land Management Within DWMAs • Installing a fence along the northern boundary of the Pinto Mountains would minimize urbanizing impacts from along the south side of Highway 62. There are no data, however, to indicate that this is a problem; in that area, all higher use impact areas are north of Highway 62	Land Management Within DWMAs • Fencing all boundaries of the Superior-Cronese DWMA would have the positive and negative effects described in Alternatives A and C, and overall would not provide for the intended protection; many of the urbanization impacts would occur inside the fence
Land Management Adjacent to DWMAs • Establishing EMZ's in Brisbane Valley and Copper Mountain Mesa would be useful in determining effects of sheep, OHV use, and urbanization but is questionable given limited funding, which would be better spent in minimizing these impacts where they are known to occur • Establishing translocation sites in Brisbane Valley and portions of the Little San Bernardino Mountains Gilia Habitat Conservation Area would serve as an adaptive management tool to deal with the foreseen event in which too many tortoises are displaced from authorized construction sites	Land Management Adjacent to DWMAs • It is anticipated that the pilot translocation study would be funded as a component of the mitigation of military maneuver programs. In the event that plan participants were required to help fund this program, it could detract from moneys available for other pro-active measures called for by this alternative.

BENEFITS	RESIDUAL IMPACTS
DWMA Configuration Relative to Open Areas • Protective fencing, boundary signing, focused educational outreach, increased law enforcement, etc. would function to minimize impacts of adjacent BLM open areas on DWMA conservation management	DWMA Configuration Relative to Open Areas • DWMA configuration of this alternative is not different from that proposed in Alternative A, so both configurations fail to encompass 119 mi^2 of higher density tortoise areas. There are a total of 67 mi^2 of higher density tortoise areas in the Johnson Valley and Stoddard Valley open areas that are immediately adjacent to the Ord-Rodman DWMA. This alternative fails to encompass these 67 mi^2, which represent 56% of the tortoise concentration areas found outside DWMAs. The inclusion of these tortoise concentrations in the DWMA would have enlarged the Ord-Rodman DWMA, which is about 600 mi^2 smaller than the 1,000 mi^2 size given in the Recovery Plan, and substantially reduced impacts to tortoises both in the adjacent DWMA and inside the open areas
DESIGNATION AND MANAGEMENT OF DWMAS AS ACECS	
Size Relative to the Existing Tortoise ACEC • Net increase of 1,590 mi^2 of public lands in ACECs, which is 40 times larger than the DTNA, at 40 mi^2	Size Relative to the Existing Tortoise ACEC
Compensation & Fee Structure • The additive compensation ratio would not ostensibly affect tortoise conservation, as the "extra" funds would be used for the species occurring in the other HCA that overlaps the DWMA	Compensation & Fee Structure
MULTIPLE USE CLASSES CHANGED TO CLASS L IN DWMAS	
DWMAs Changed to Class L • Changing all Class M and unclassified public lands in DWMAs to Class L would resolve the many potential problems identified in Alternative A, and have the benefits of management associated with Class L over a broader region	DWMAs Changed to Class L
ACEC Prescriptions Supercede Class M and unclassified public lands • Formal ACEC Management Prescriptions, applied to DWMAs, that would provide more protection than existing Class M or unclassified public land guidelines on public lands, include: • No new agriculture, including biosolids fields • No new nuclear and fossil fuel power plants • New routes considered in context of Class L guidelines, thereby limiting agency discretion • Recreational events restricted to approved routes rather than existing routes • No pit, start, finish, or spectator areas allowed in DWMAs	ACEC Prescriptions Supercede Class M and unclassified public lands
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
Acquisition Priorities • Acquire all private lands in DWMAs (see Alternative C)	Acquisition Priorities • Same as Alternative C

BENEFITS	RESIDUAL IMPACTS
NEW AGRICULTURAL DEVELOPMENT	
New ACEC Management • New ACEC Management Prescription would prohibit agricultural development on BLM Class M and unclassified public lands	New ACEC Management
CONSTRUCTION ACTIVITIES	
Level 1 BMPs and Class L Management • Applying Level 1 BMPs in tortoise Survey Areas outside DWMAs would serve to minimize indirect impacts in all areas, not just DWMAs and SRAs • New Class L designation would not allow construction of new landing strips and airports, and new nuclear and fossil fuel power plants on Class L lands in DWMAs	Level 1 BMPs and Class L Management
DISEASE MANAGEMENT	
Positive Aspects of Alternative • See discussion in Alternative A	Negative Aspects of Alternative
DROUGHT	
Motorized Vehicle Access • Establishing vehicle use, quarantine areas in higher density tortoise areas during drought would serve to alleviate additional impacts to tortoises that are already physiologically stressed due to lack of water and poor nutrition	Motorized Vehicle Access
FIRE MANAGEMENT	
New Fire Management Prescriptions • New prescriptions identified for fire fighting would result in fewer mechanical impacts in DWMAs and higher tortoise density areas, but may also result in larger areas being burned than would occur under current management	New Fire Management Prescriptions
CATTLE GRAZING ON BLM ALLOTMENTS	

BENEFITS	RESIDUAL IMPACTS
Allotment-specific Competitive Threshold Studies • Requiring new studies in the Ord Mountain, Harper Lake, and Cronese Lakes cattle allotments to ascertain allotment-specific competition thresholds would effectively reduce risks associated with the 230 pound threshold (which is based upon studies conducted in the East Mojave). • Applying the interim threshold of 350 pounds until the studies are completed would allow for significantly less ephemeral forage consumption than would occur at the 230 pound threshold. Although the CDCA Plan called for a 350-pound threshold in 1980-designated crucial habitat, that requirement was eliminated by a 1981 plan amendment. Current grazing management employs a 350 pound threshold, but only because this was called for in a 1994 biological opinion. This proposal would require implementation of this management practice on all cattle allotments in DWMAs.	Allotment-specific Competitive Threshold Studies • Impacts given in Alternative A would still occur, but at lower levels due to the relatively higher threshold (i.e., cattle would ostensibly spend less time in Exclusion Zones, which would result in fewer impacts in that critical area). However, the higher threshold would also result in relatively more concentrated cattle use in non-Exclusion Zone areas, which may also comprise tortoise habitat (see more detains in Alternative A)
Earlier Cattle Exclusion Date • Removal of cattle by February 15 (rather than 15 March, as proposed in Alternative A), would result in less forage competition between cattle and juvenile (especially hatchling) tortoises, which may be active in January and February and rely on late winter annuals available in limited supply	Earlier Cattle Exclusion Date • Hatchlings would still be vulnerable to trampling because cattle would only be excluded from the best tortoise habitat through mid-June, and would continue to graze those areas when most tortoise eggs hatch (i.e., late September-October timeframe) and hatchlings are most vulnerable
Protect Riparian Areas • Protecting riparian areas from additional impacts would result in minimal benefits to tortoises; seeps and springs generally occur upslope while most tortoises occur in the flats; and only tortoises in the immediate vicinity are likely to benefit from vegetation growth and free-standing water (i.e., there is no evidence that tortoises migrate back and forth between the flats and slopes to drink from springs)	Protect Riparian Areas
Placement of Cattle Waters • Water placement may lead to better dispersal of cattle, which would incrementally minimize impacts as described above and in Alternative A	Placement of Cattle Waters • See above and Alternative A
OHV Impacts to Cattle • Minimizing OHV impacts to cattle would be an indirect means of protecting tortoises; fencing, signing, law enforcement, and other programs would serve to minimize OHV impacts to tortoises and cattle	OHV Impacts to Cattle
HABITAT CREDIT COMPONENT	
Do Not Implement Program • Removal of the Habitat Credit Component would avoid potential impacts described in Alternative A	Do Not Implement Program

BENEFITS	RESIDUAL IMPACTS
Implement Alternative Program • Proactive program to restore habitats within DWMAs would result in facilitated habitat rehabilitation, although failure to achieve success criteria (see discussion in Alternative A) would undermine the effectiveness of the program	Implement Alternative Program
HEAD STARTING PROGRAM	
Expanded Head Starting Program • Establishing five head starting studies has the obvious disadvantage of cost, but longitudinal monitoring would minimize cost, and would allow successful sites to be continued and unsuccessful sites to be discontinued. • Substantial advantages of replicating studies in different regions would include an ability to compare success and failures in different habitat types, and if successful, would result in release of hatchlings 8 to 10 years sooner than if the pilot study were found to be successful and was followed by constructing multiple nurseries, as would already occur under this alternative	Expanded Head Starting Program
MOTORIZED VEHICLE ACCESS NETWORK	
• See Multiple Use Class and Drought sections above • (AD-33) The closure of identified MAZs in DWMAs (see chapter 2,Table 2-33) to all but street-legal vehicles would have a significant beneficial impact of prohibiting the types of vehicles most likely to drive cross-country (e.g., dirt bikes, dune buggies, etc.) from tortoise conservation areas. This would likely minimize impacts to tortoises, but be particularly important to habitats, which are less likely to be degraded if vehicles remain on roads.	• (AD-33) The intended function of restricting vehicle travel to street-legal vehicles would only be viable if increased law enforcement is present to enforce the new rule. Street-legal vehicles, including 4-wheel drive trucks
RECREATION ACTIVITIES	
Competitive Event Corridors and Dual Sport • Same as Alternative A, except no competitive or organized vehicle events would be allowed in DWMAs, which would eliminate impacts associated with competitive corridors in the Ord-Rodman DWMA and dual sports throughout	Competitive Event Corridors and Dual Sport • All available information indicates that there are very few impacts to tortoises and habitat associated with dual sports and regulated use (i.e., under yellow-flag conditions) of competitive event corridors, while the proposal to eliminate these uses would result in significant effects upon OHV recreation (see discussion below) and undermine public support of the conservation strategy, which is required to be successful

BENEFITS	RESIDUAL IMPACTS
Other Conservation Measures • Restricting *camping* to designated areas would function to concentrate future authorized impacts rather than have them spread out in disturbed areas; would facilitate issuance of citations by law enforcement personnel • Closing multiple *campsites* in favor of one official campsite would allow existing sites to begin recovering in the absence of new camping; would allow focused educational outreach to campers at the official site • Restricting *stopping and parking* to within 15 feet of the centerline of approved routes would result in substantially less vehicle impact than would occur under Alternative A, and may facilitate law enforcement	Other Conservation Measures • Consolidated, BLM-maintained camp site would require additional BLM staff, expenditures, and serve to concentrate people in a single area where indirect impacts to adjacent areas could be more prevalent
Gunshot Impacts • Prohibiting shooting in DWMAs would substantially minimize the number of gunshot mortalities, and allow enforcement personnel to issue citations more effectively	Gunshot Impacts • Would result in substantially less support by the hunting and target practice community, which would be required to facilitate acceptance of the strategy
TRANSPORTATION	
Highway and Road Fencing • Extending a new fence from Highway 395 to the DTNA would substantially reduce OHV impacts from the south into the DWMA, north of Mojave-Randsburg Road • Fencing Shadow Mountain Road would provide for fewer tortoise mortalities, and overall have the same advantages and disadvantages described for Alternative A • Installing fences and underpasses along Fort Irwin Road would avoid tortoise mortalities while providing for movement under the road to lessen habitat fragmentation of the higher density area found there	Highway and Road Fencing • Although fencing Mojave-Randsburg Road would have an overall positive impact, it would entail moving the existing fence south to the road, or alternatively, removing the fence, which in either case would be relatively costly
Caltrans Mitigation Banking • Caltrans mitigation banking would allow Highway 395 to be fenced between 10 and 15 years earlier than would otherwise occur. Given available information[14], this may mean that a few more than 30 tortoises (most of these subadults) would not be crushed per year along Highway 395 from Kramer Junction to the southern boundary of the Fremont-Kramer DWMA, which would constitute a significant beneficial impact	Caltrans Mitigation Banking
UTILITIES	
Require Region-wide Revegetation • Requiring utility companies to revegetate non-access areas throughout the planning area (as opposed to only DWMAs) would facilitate recovery of plant communities on a much wider scale	Require Region-wide Revegetation • Revegetating alignments throughout the ITA would result in recovering habitats that are otherwise identified for take, and would not contribute to overall conservation in DWMAs

[14] Dr. Boarman estimated that about 1.5 tortoises/linear mile/year were crushed along Highway 395 south of Kramer Junction. The fenced area would be about 22 linear miles, so a total of about 33 tortoises may be expected to be crushed along this length of Highway 395 *each year* until it is fenced.

Alternative D necessarily places tortoise conservation and recovery as the highest priorities for land management within the expanded DWMAs. In comparing this alternative to Alternatives A and C (the other two most proactive tortoise conservation programs), Alternative D has both major advantages and neutral advantages, as described in the following subparagraphs.

Advantages of Alternative D: One major advantage would be changing multiple use classes from Class M and unclassified to Class L, which have been described in Alternative A as disadvantages associated with that alternative. The new ACEC would be 40 times larger than the existing DTNA, and have advantages similar to those given for Alternatives A and C. Formal ACEC management prescriptions would be substantially more protective for this alternative as they relate to new agriculture, construction (i.e., no new nuclear or fossil fuel power plants), new route designation, and recreation. These potentially significant impacts are not addressed by Alternatives A and C. Applying Level 1 BMPs throughout all higher concentration areas would be more protective, and address more indirect impacts, than restricting them to DWMAs and SRAs, as given in Alternative A. This is far better than Alternative C, which would not designate either SRAs or BTAs. Establishing vehicle quarantine areas in higher concentration areas during drought would be substantially more protective, and significantly augment the limited number of things that can be done relative to drought. Studies to determine local and regional competition thresholds between tortoises and cattle would avoid many of the impacts associated with applying the East Mojave threshold in the planning area. Earlier exclusion area dates (i.e., February 15 instead of March 15) would predictably benefit hatchling tortoises in minimizing competition for limited annual plant growth in the late winter, early spring time frame.

The head starting and fencing programs may be even more significant than the advantages listed above. The expanded head-starting program would be a major advantage, in an attempt to repopulate areas that have been substantially extirpated by older die-off regions north of Highway 58 in the Fremont-Kramer DWMA. Another very significant advantage would be fencing Highway 395 south of Kramer Junction 10 to 15 years prior to construction. Available data suggest that more than 300 tortoises, particularly subadults, would be saved from vehicle crushing if the 22-mile stretch of Highway 395 is fenced shortly after plan adoption instead of 10 years later.

Marginal or Neutral Advantages of Alternative D: Although the Alternative A and C DWMAs would be expanded by 68 mi^2, the protection provided by this expansion would be marginal, for reasons given in the table. Erecting a fence along Highway 62 to preclude urbanizing impacts from the north into the Pinto Mountain DWMA would have little or no benefit. Establishing Experimental Management Zones to study effects of sheep grazing, recreation, and urbanization on tortoises in the Brisbane Valley and Copper Mountain Mesa areas would have marginal benefits, if any, to tortoise conservation in the expanded DWMA; limited funds would be better spent implementing protective measures in the DWMA. Protecting riparian areas would do little to enhance tortoise conservation. Potential impacts associated with the habitat credit component would be avoided under this alternative. Minimizing the camping, stopping, and parking distances from approved routes would provide slightly more protection, but this would not likely be substantial.

4.5.2.3 Mohave Ground Squirrel

Alternative D would implement protective measures identified similar to those of Alternatives A and C for both the tortoise and MGS, and is intended to provide for enhanced MGS conservation on both public and private lands. The analysis is meaningful, as most of the measures were identified for the tortoise, and this is an opportunity to see if enhanced tortoise protection would extend to the MGS. The MGS CA and two DWMAs would be expanded, as described in the table.

Similar impacts given for the tortoise and/or MGS (mostly in Alternative A for the two species) would affect the following programs where the two species ranges coincide: DWMA Management within the MGS CA; Biological Transition Areas (BTAs); Los Angeles County Significant Ecological Area; Sierra Foothills Habitat Connector; Species-specific Conservation Areas; Incidental Take Authorization; 1 % Allowable Ground Disturbance; Category I, II, & III and Critical Habitats for Tortoises; Conservation Relative to Military Bases; Commercial Filming and Plant Harvest; Dump Removal and Waste Management; Education; Feral Dog Management Plan; Law Enforcement; Mining; Raven Management Plan; Utilities Construction and Maintenance; Competitive Events; Non-competitive Events (Dual Sports); Presence-Absence Surveys; Highway Fencing and Culverts; Road Maintenance; and Monitoring.

Table 4-57 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under Alternatives A and C for the tortoise and MGS. As such, the programs listed above are not reiterated in Table 4-48.

Table 4-57
Mohave Ground Squirrel Impacts of Alternative D

BENEFITS	RESIDUAL IMPACTS
<u>Conservation Area</u> Size of Conservation and Incidental Take Areas • (AD-1) Reconfiguring the Fremont-Kramer DWMA to encompass existing critical habitat between Shadow Mountain Road and the El Mirage Open Area would result in heightened protection for 19 mi^2, and represent a marginal beneficial impact on a regional level. • (AD-1)The additional reconfiguration northwest of Kramer Junction, between Highway 395 and the Kern County line, would constitute a marginal benefit to MGS conservation, as the area is extremely impacted by on-going sheep grazing. Only 2 of 252 MGS records were reported for this area.	<u>Conservation Area</u> Size of Conservation and Incidental Take Areas

BENEFITS	RESIDUAL IMPACTS
Management Structure within the MGS CA Compensation and Fee Structure • (AD-4) The additive mitigation fee would provide for more conservation where the MGS CA overlaps with DWMAs and conservation areas for other species. Rather than collecting fees solely for MGS management, there would be additive fees that could be applied separately for MGS conservation and other species. Given anticipated short falls to implement conservation measures, and the likelihood that tortoise and other federally listed species may receive higher priority than the State-listed MGS, the additive fees (depending on how they are expended) would constitute a significant beneficial impact.	Management Structure within the MGS CA Compensation and Fee Structure
Management Structure within the MGS CA Best Management Practices • (AD-8) As described above, applying BMPs within the two DWMAs and the MGS CA would serve to minimize direct impacts.	Management Structure within the MGS CA Best Management Practices • (AD-8) BMPs would have little efficacy in avoiding indirect impacts.
Management Structure within the MGS CA HMP Instead of ACEC Designation • (AD-2) Designating this area as an ACEC would constitute a very significant beneficial impact, compared to managing the area in the context of Wildlife Habitat Management Area. Benefits would be similar to those given for the tortoise in Alternative A, relative to designating the DWMAs as ACECs.	Management Structure within the MGS CA HMP Instead of ACEC Designation
Management Structure within the MGS CA Multiple Use Class Designations • (AD-3) Reclassifying all BLM multiple use class M lands within the CA to class L would constitute a significant beneficial impact, and avoid the types of impacts identified relative to Alternative A for the tortoise. • (AD-9) Applying additional restrictions on public lands to replace CDCA multiple use guidelines on class M and unclassified lands would provide limited additional protection to the MGS, as most of the two DWMAs and the MGS CA are already within class L habitats, where new agriculture, construction, routes, competitive events, and organized non-competitive events are already restricted.	Management Structure within the MGS CA Multiple Use Class Designations
Miscellaneous Conservation Programs Fire Management • (AD-10) The expanded fire management practices identified in Chapter 3 would each provide for relatively more protection in the two DWMAs and benefit MGS and their habitats where wildfires are fought.	Miscellaneous Conservation Programs Fire Management

BENEFITS	RESIDUAL IMPACTS
Miscellaneous Conservation Programs Habitat Credit Component • (AD-5) Not including the habitat credit component would avoid the potential impacts identified for this program in Alternative A for the tortoise. The intent to restore habitats within the MGS CA and two DWMAs would benefit the MGS by beginning to regain habitats lost to or degraded by previous human uses. Habitat Reclamation and Restoration • (AD-8) Restoring habitats, rather than reclaiming them, would benefit MGS, as described above in other alternatives with similar prescriptions.	Miscellaneous Conservation Programs Habitat Credit Component Habitat Reclamation and Restoration
Miscellaneous Conservation Programs Land Acquisition • (AD-13) The long-term land acquisition goal to acquire all private lands within the two DWMAs for tortoise conservation from willing sellers would have the positive effect of minimizing habitat fragmentation, depending on the uses allowed by the BLM.	Miscellaneous Conservation Programs Land Acquisition • (AD-13) Windmill alignments, new open areas, large-scale development (e.g., Venture Star or military expansion), and similar developments could result in habitat fragmentation that would significantly detract from MGS conservation.
Miscellaneous Conservation Programs Mining	Miscellaneous Conservation Programs Mining • (AD-20) Mineral withdrawals would be appropriate for "source areas," but the alternative fails to identify other uses that should also be assessed for removal (i.e., grazing, intense OHV use and recreation, large-scale developments).
Miscellaneous Conservation Programs Signing and Fencing DWMAs • (AD-11) As described, the expanded fencing program identified for the two DWMAs relative to the tortoise would provide some, but likely little, benefit to MGS conservation.	Miscellaneous Conservation Programs Signing and Fencing DWMAs

BENEFITS	RESIDUAL IMPACTS
Livestock Grazing • (AD-27, AD-32) Funding an Avery-Ivanpah study on the Harper Lake Allotment would not benefit MGS conservation, per se, as the intent would be to determine competition between cattle and tortoises. Given "boom and bust" cycle of the MGS, it may not be possible to design a similar competition study to determine interactions between cattle and the MGS. In any case, the intent to use a threshold of 350 lbs/acre would more benefit the MGS than other alternatives identifying 200 or 230 lbs/acre. • (AD-28) The intent to remove cattle from Exclusion Areas by February 15 rather than March 15 would have conservation value for the MGS, as it typically emerges from hibernation before tortoises, and any competition that may occur would be reduced under the earlier date. • (AD-1) Removal of sheep grazing from 14 mi^2 would be one of the more significant beneficial impacts of expanding the Fremont-Kramer to the south into critical habitat excluded in Alternative A. There were no MGS records from this area, though it is fully within the range. • (AD-1) The additional reconfiguration northwest of Kramer Junction, between Highway 395 and the Kern County line, would allow sheep grazing to be discontinued, which would constitute a significant beneficial impact. Two of 252 records occurred in area.	Livestock Grazing
Motorized Vehicle Access • The motorized vehicle access network proposed for Alternative A would be implemented under Alternative D and have the same beneficial impacts identified above. • (AD-33) Based on available data, requiring additional motorized vehicle access restrictions in the following MAZ's would predictably benefit MGS conservation: (a) Little Dixie Wash area: El Paso SS2, and the non-MAZ area north of the El Paso Mountains Wilderness Area, between Ridgecrest SS1 and El Paso SS2. (b) Cuddeback Dry Lake/Pilot Knob area: Red Mountain SS3 and SS4. And (c) Coolgardie Mesa/Superior Valley area: Superior SS3 and SS5. • (AD-35) During periods of prolonged drought (lasting three or more years), the BLM would consider emergency route closures (generally referred to as "quarantine areas") in the following potential MGS concentration areas (would apply to the MAZs given above): (a) Little Dixie Wash area, between the Sierra Nevada and Ridgecrest/Inyokern; (b) Cuddeback Dry Lake/Pilot Knob area; (c) Coolgardie Mesa/Superior Valley area. • Such quarantines would be lifted immediately following break of the drought, which would be identified by the Implementation Team in coordination with BLM, USFWS, and CDFG.	Motorized Vehicle Access • (AD-33, AD-35) Closure of other areas would likely benefit MGS conservation, but there are insufficient data to determine where such areas may be located.

BENEFITS	RESIDUAL IMPACTS
Recreation Hunting and Shooting • (AD-7) Prohibitions with regards to general shooting other than hunting would constitute a marginal benefit to the MGS, which may not be particularly affected by this prescription.	Recreation Hunting and Shooting
Recreation Stopping, Parking, and Camping • (AD-6) Advantages identified above relative to reduced widths for stopping and parking; restricting camping to designated areas; consolidating multiple camp sites into one official BLM-managed campground; and distribution of education materials relative to the MGS, all are concomitantly more beneficial to MGS conservation than programs identified in other alternatives.	Recreation Stopping, Parking, and Camping
Surveys Exploratory Surveys • (AD-20) Conducting programmatic surveys in potential habitat areas would help develop a better MGS range map, and would constitute a significant beneficial impact if MGS are found outside the known range. As described in Chapter 3, trapping surveys are the only means to determine if the range is larger (or smaller) than expected. • (AD-20) Identifying and protecting "source areas" (if they exist) would be extremely important to MGS conservation, as it would allow for restrictive management to protect these drought refugia.	Surveys Exploratory Surveys • Spending limited funding on these surveys may detract from implementing conservation measures. Nor is there any guarantee that negative trapping results in one to several seasons would definitively show that the MGS is absent from survey areas. As such, it may be cost prohibitive to survey these areas over a five or six year period to conclusively say that the MGS is absent.
Surveys Surveys for Other Species • (AD-21) Performing burrowing owl surveys on all project sites within the MGS range may allow for detection of the MGS, although the likelihood is slim. Habitat characterization and other data could be used by the CDFG for sites within the range to determine the quality and potential occupancy of habitats being lost. These would represent marginal benefits to overall MGS conservation.	Surveys Surveys for Other Species

Alternative D has the same advantages and disadvantages described for Alternative A, with two major exceptions: the MGS CA would be designated as an ACEC and all multiple use classes would change to class L. Alternative D is the only one that would result in ACEC management throughout the MGS CA, which make it the most protective of the seven alternatives. Changing all public lands to class L results in about 580 mi^2 more class L than any other alternative.

4.5.2.4 Bats

Impacts to bats under Alternative D would be as described for Alternative A.

4.5.2.5 Other Mammals

Bighorn Sheep: Retention of the open space corridor west of Lucerne Valley would provide additional benefit for bighorn that occasionally move between the Granite Mountains and the San Bernardino Mountains. Restriction on travel in the Newberry-Rodman MAZ area to street legal vehicles may have a small additional beneficial impact to bighorn.

Mojave River Vole: Impacts to the Mojave River vole under Alternative D would be as described for Alternative A.

Yellow-eared Pocket Mouse: Establishment of a grazing exclosure in occupied habitat in the eastern Sierra canyons (e.g. Sand Canyon) would allow a better determination of the potential effects of grazing on yellow-eared pocket mouse.

4.5.2.6 Birds

For the following birds, impacts would be the same as described for Alternative A except as noted below for route designation: Bendire's thrasher, Brown-crested flycatcher, ferruginous hawk, golden eagle, Inyo California Towhee, LeConte's thrasher, long-eared owl, prairie falcon, southwestern willow flycatcher, summer tanager, vermilion flycatcher, western snowy plover, western yellow-billed cuckoo, yellow-breasted chat, and yellow warbler.

The restrictions within certain MAZ areas to street-legal vehicles only would provide a small additional benefit to golden eagle and prairie falcon and a substantial additional benefit to Bendire's thrasher and LeConte's thrasher compared to Alternative A.

Burrowing Owl: Surveys required for discretionary permits under Alternative D would provide positive evidence of presence or absence of burrowing owls on project sites. This is most likely to result in additional detections and better burrowing owl protection than under Alternative A or the existing situation. The restrictions within certain MAZ areas to street-legal vehicles only would provide a substantial additional benefit to burrowing owls compared to Alternative A.

Gray Vireo: Establishment of open space surrounding the drainages from the San Bernardino and San Gabriel Mountains would provide a small amount of additional open space within the habitat for gray vireo. This beneficial impact is not likely to be effective in increasing protection for this bird from adjacent rural residences, however, and the overall impacts of Alternative D to this specie would be the same as Alternative A.

4.5.2.7 Reptiles

Establishment of additional open space surrounding the drainages from the San Gabriel and San Bernardino Mountains would have a beneficial impact on the San Diego horned lizard compared to Alternative A because additional habitat would be protected. This measure would not eliminate edge

effects of rural development, including collection by children or mortality by vehicles.

Impacts would be as described for Alternative A for the following species Panamint alligator lizard and southwestern pond turtle. The Mojave fringe-toed lizard would receive a substantial benefit compared to Alternative A because of the restrictions in certain MAZ areas to street-legal vehicles.

4.5.2.8 Plants

The higher mitigation ratio within conservation areas where covered species have overlapping distributions may serve as a disincentive to development, which would primarily benefit rare plants within the DWMAs. The magnitude of this benefit is not expected to be substantial. Even with the higher mitigation ratio required where several covered species occur together, the most likely outcome would be higher fees without a guarantee of better protection for the plant species.

Most projects require specific locations. For projects on public land that have discretion with respect to location and can be moved away from overlapping distributions of species, this alternative would result in better protection for those species.

For the following plants, impacts would be the same as described for Alternative A, except as noted below for route designation: alkali mariposa lily, Barstow woolly sunflower, crucifixion thorn, desert cymopterus, flax-like monardella, Kelso Creek monkeyflower, Kern buckwheat, Lane Mountain milkvetch, Little San Bernardino Mountains gilia, Mojave monkeyflower, Mojave tarplant, Parish's alkali grass, Parish's phacelia, Parish's popcorn flower, Red Rock poppy, Red Rock tarplant, Reveal's buckwheat, Salt Springs checkerbloom and triple-ribbed milkvetch.

Restrictions in certain MAZ areas to street-legal vehicles would be substantially more beneficial than Alternative A for the following plants: Barstow woolly sunflower, crucifixion thorn, desert cymopterus, Lane Mountain milkvetch, and Parish's phacelia.

Carbonate Endemic Plants: Withdrawal of the Carbonate Endemic Plants ACEC from mining would provide a more certain guarantee that these species would be protected from adverse impacts of mining. The 3089 regulations governing mining plans allow BLM the discretion to deny proposals that would result in jeopardy to the species, so the protection is one of regulatory certainty rather than on-the-ground conservation.

Charlotte's Phacelia: Alternative D would be far more beneficial to this species because of the exclusion of cattle grazing during the growth period.

Nine-Mile Canyon Phacelia: Alternative D would be far more beneficial to this species because of the exclusion of cattle grazing during the growth period.

Shockley's Rock Cress: Withdrawal of the Carbonate Endemic Plants ACEC from mining

would provide a more certain guarantee that these species would be protected from adverse impacts of mining. The 3089 regulations governing mining plans allow BLM the discretion to deny proposals that would result in jeopardy to the species, so the protection is one of regulatory certainty rather than on-the-ground conservation.

Short-joint Beavertail Cactus: Establishment of additional open space surrounding the drainages from the San Gabriel and San Bernardino Mountains would have a beneficial impact on the short-joint beavertail cactus. Many individuals are expected to remain and survive in place within this open space.

White-margined Beardtongue: Changes in the multiple use classes from M to L on lands south of the Cady Mountainswould apply stricter land use standards of the CDCA Plan. These standards affect specific provisions of grazing facilities, competitive recreation events, land tenure adjustment and placement of electrical generation and distribution facilities. Application of the Class L standards would generally be a beneficial impact relative to Alternative A, though the demand for land use permits and activities on public lands in this area is low..

4.5.3 Socio-Economics

4.5.3.1 Livestock Grazing

Impacts would be as described for Alternative A, except as discussed below.

Cattle Grazing In Tortoise Habitat and MGS Conservation Area: New management prescriptions would require BLM to prevent any further damage to identified riparian areas on all cattle allotments, including Round Mountain. BLM would also take an aggressive look at the best placement of water to facilitate other management actions (e.g. establishment of exclusion zones) and minimize impacts on all covered species. These proposed management actions are necessary to ensure compliance with the proposed Regional Public Land Health Standard for Riparian/Wetland and Stream Function. This may result in the modification of existing cattle operations in the planning area. Due to funding limitations, the necessary modifications would have to be prioritized and scheduled over a four to six year period. These changes in grazing management actions are already being implemented on some allotments (such as Walker Pass).

Cattle Grazing in DWMAs: New management prescriptions would require BLM to fund a study of tortoise nutritional ecology in relation to livestock grazing in three DWMA allotments (Harper, Ord, and Cronese Lake) to determine the applicability of the 230 lbs/acre threshold to the western Mojave Desert. Until that determination is made, cattle would not be authorized to graze until 350 lbs/acre of ephemeral production occurs. This type of management prescription would essentially end cattle grazing in the planning area. Cattle grazing would not occur until ephemeral production exceeds 350 lbs/acre, and this production would have to be achieved by February 15th, rather than March 15th as prescribed under Alternative A. In a typical year with late winter/early spring precipitation the

germination of most annual species occurs by February 15th, but meaningful production does not occur until the period between mid-February and mid-March. Consequently, in most years cattle grazing would be unlikely to occur between February 15th and June15th in any of these three allotments.

Sheep Grazing in MGS and Mojave Monkeyflower Conservation Areas: Ephemeral sheep grazing in the MGS Conservation Area would not occur until ephemeral production exceeds 350 lbs/acre, rather than the 230 lbs/acre threshold of Alternative A. The increase in the production turnout threshold from 230 lbs/acre to 350 lbs/acre, however, would not result in any meaningful impact to most of the ephemeral sheep operations. Generally, they would not incur the expense of shipping their sheep from Bakersfield to the desert unless there is at least 350 to 400 lbs/acre of ephemeral forage awaiting them.

No sheep grazing would occur after May 15th. This provision would add additional burdens to most of the ephemeral sheep operations. For many of the operations, the use of the desert's ephemeral forage base is only a part of an annual cycle that includes transporting the sheep from the desert to perennial forage on the Inyo National Forest for the summer. Often, the Forest Service does not authorize sheep grazing until early June. This may mean that sheep operators would be forced to move their herds onto adjacent private land until Forest Service allotments are ready. The risk of trespass on these private lands would increase, if permission were not obtained from the landowners. This provision would ensure that sheep and Mohave ground squirrels would not be in competition for perennial forage, especially for shrub species.

4.5.3.2 Mineral Development

Mining under Alternative D would be very similar to Alternative A. The requirement for access restoration, in addition to discouraging exploration by smaller companies due to higher operation costs, would result in a longer span of time before reclamation would be complete and the operator released from the period of liability.

4.5.3.3 Recreation

Alternative D shares many of the same impacts on the motorized route network as Alternative A. Alternative D does have a number of unique management prescriptions that cause it to differ substantially from Alternative A. Some of these management prescriptions will affect the designated open motorized route network and various recreational and commercial opportunities that are dependent upon motorized access.

During periods of drought vehicle use quarantine areas would be established. These quarantine areas would be established with the intent of alleviating additional impacts to tortoises that are already physiologically stressed due to lack of water and poor nutrition. The precise impact of these quarantines upon vehicular use of the motorized route network and recreational and commercial activities is unpredictable, but is likely to be very profound. Both the length and geographical extent of

the quarantine would be defined at the time the quarantine is imposed, which would be dictated by the severity and extent of the drought. The direct effects of this quarantine would be the lack of vehicular access to potentially vast areas. The indirect effects of quarantine are also likely to be profound, as major shifts in recreational activity would occur, resulting in a much more intensive and concentrated use of non-quarantine areas. This in turn could lead to increased visitor conflicts, route proliferation in these "spill over" areas and increased resource damage.

Under this alternative non-street legal or "Green Sticker" vehicles would be restricted from entering several Motorized Access Zones, due to the presence of sensitive tortoise populations or habitat. This would immediately reduce the number of recreational opportunities currently available to dune buggies, rails, quads, ATCs, and dirt bikes. As a result these vehicles would increasingly use areas outside of these restricted MAZs. This shift would tend to be from landscapes characterized by "bajadas and washes" to more mountainous terrains (i.e. with slopes greater than 20% slope and/or with elevations in excess of approximately 3500 feet). In addition, there is likely to be much more intensive and concentrated use of such "spill-over" areas as the Open Areas, the El Pasos, and portions of the Red Mountain and Fremont sub regions. This in turn could lead to increased visitor conflicts and route proliferation "spill over" areas.

4.5.4 Cultural Resources

Reduction of corridors along routes for stopping and parking and designating specific camping areas could reduce impacts to cultural resources within the DWMAs. Reduction of "general" shooting and target shooting may reduce impacts to certain types of cultural resources that are used as targets or vandalized by shooters. Restricting recreational events to "approved" routes rather than "existing" routes could reduce impacts to cultural resources along existing routes. Moving pit areas, start areas, and other support sites outside DWMAs may reduce impacts to cultural resources inside DWMAs but may increase impacts to resources outside DWMAs if these activities move to other areas. Since habitat conservation strategies and the motorized vehicle access network would be the same as Alternative A, impacts would be the same as those identified in Alternative A.

4.5.5 Cumulative Impacts

Other Species: Alternative D would have fewer cumulative impacts to biological resources because of the restrictions on green sticker vehicles within the DWMAs and the emergency closures in response to drought. These measures would reduce degradation of the habitat from off-road travel both during normal years and drought years.

Increased vigilance with respect to grazing on public lands (measures AD-28, AD-29 and AD-32) would allow greater production of annual plants in areas grazed by cattle, would provide greater benefit to the riparian habitat in the east Sierra canyons, and would reduce degradation of all areas grazed by sheep in the MGS conservation area. Rare plant species benefiting from these measures include Charlotte's phacelia, desert cymopterus and potentially Red Rock tarplant and Red Rock

poppy. The riparian birds in the east Sierra canyons may benefit from increased understory and growth of saplings of canopy trees.

When placed in context of other developments within the DWMAs, east Sierra canyons and MGS conservation area that may cumulatively impact the habitat, the reduction in surface disturbance by the additional restrictions on vehicle use and grazing would be more beneficial than measures of Alternative A.

Livestock Grazing: Similar to Alternative A.

Minerals: The cumulative impacts would be similar to those of Alternative A, with the additional negative impact resulting from the high costs needed to restore access routes for mining exploration. The stringent reclamation standards imposed by the NPS for mines absorbed by the CDPA coupled by those required by this alternative for the 2.2 million acres of conservation areas would make exploration and mining more costly to the industry I'm not sure that an action completed in 1994 qualifies for the discussion of cumulative impacts now.

Recreation: Cumulative effects would be significant. Specifically, the closure of vast areas of the western Mojave Desert to non-street licensed vehicles would result in a dramatic shift in use patterns. Users of most motorcycles, ATV's, quads and dune buggies would have to move their activities elsewhere. These uses would be displaced to areas area where non-street licensed vehicle are allowed, including the more mountainous zones, lands outside of the DWMAs, OHV Open Areas and the NEMO and NECO planning areas. Because so many recreational groups currently visiting this planning area own and would continue to want to use their non-street legal vehicles, the number of individuals who shift their recreational location would be substantial. This could lead to increased concentration of such uses, which would significantly decrease the opportunity for a "remote" experience, even in the NEMO and NECO planning areas, and would increase the level of conflict between different recreational.

4.6 ALTERNATIVE E: ONE DWMA, ENHANCED RECREATION

4.6.1 Air Quality

See Alternative A above, except as specifically noted below.

The expanded motorized vehicle recreation proposed in Alternative E would result in increased emissions of particulate mater including PM_{10}. Estimates of emissions from this type of activity requires inputs on the number of additional miles traveled on unpaved roads, the type of vehicle and the speed of the vehicle in addition to the amount surface area exposed to wind erosion. Estimates for most of these factors are not available. A rough estimate of the wind erosion emissions from the proposed Fremont Recreation Area can be derived from MDAQMD inventory data. They show the Spangler Hills Open Area has approximately 300 miles of roads. Using the MDAQMD average widths and emission

factors, the Spangler Hills area could emit around 900 tons of PM_{10} per year as a result of wind erosion. As the Fremont Recreation Area's size is similar, comparable wind erosion figures could be expected. Additional emissions could be expected from vehicle travel in the other expanded open areas (Spangler Hills and Johnson Valley) and the additional open vehicle routes proposed.

A small portion of the proposed expansion area for the Spangler Hills Open Area would be within Kern County. This area is not within a federal PM_{10} nonattainment area. The remaining proposed OHV use expansion is within the Mojave Desert PM_{10} Federal nonattainment Area. The SIP for this area was rejected by the USEPA and is currently being revised along with the implementing rules. The rejected SIP and the proposed new rules require the application of control measures and the development of a BLM dust control plan. The new proposed rules would have emission budgets for BLM lands with possible reductions. It is unlikely that Alternative E could meet the budget or dust control rules.

Cumulative Impacts: Most of the proposed increased OHV activity and disturbed ground would occur within the Mojave Desert PM_{10} Federal Nonattainment Area. The activity would result in increased concentrations of PM_{10} in the atmosphere. The increased concentrations combined with the existing PM_{10} emissions in the Mojave Desert PM_{10} Plan Area could result in violations of NAAQS.

Significance: Alternative E would result in significant negative impacts on air quality. It could cause or contribute to new violations of the National Ambient Air Quality Standards, increase the frequency or severity of existing violations of NAAQS and/or delay timely attainment of the NAAQS. The activity does not conform to the applicable implementation plan (federal conformity). In addition, the MDAQMD significant thresholds for particulate Matter (PM_{10}) of 15 tons per year would be exceeded. It is unlikely that the expected impacts could be mitigated to less than significant.

Conformity Analysis and Conclusions: Federal conformity rules require that federal managers make a determination that a proposed activity conforms to the implementation plan and not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of NAAQS and/or delay timely attainment of the NAAQS. Alternative E as proposed could not be approved because it does not conform and the impacts cannot be mitigated to conform or be reduced to less than significant.

4.6.2 Biological Resources

4.6.2.1 Natural Communities

Impacts to natural communities under Alternative E would be as described for Alternative A, except as follows:

- A greater level of degradation to creosote bush scrub, saltbush scrub, desert wash scrub and Mojave mixed woody scrub would result from expansion of the Open Areas, creation of the Fremont Recreation Area and inclusion of the enduro corridor.

- The lava and sand fields near Pisgah Crater would become somewhat more degraded by inclusion of the Barstow to Vegas race corridor, depending on the ultimate alignment.

The acreage of each natural community that is protected by Alternative E is presented in Table 4-58.

Table 4-58
West Mojave Natural Communities Impacted by Alternative E (In Acres and %)

NATURAL COMMUNITY	TOTAL ACREAGE	EXISTING CONSERVATION		NEW CONSERVATION		TOTAL CONSERVATION		POTENTIAL INCIDENTAL TAKE	
Alkali seep	59	0		0		0		59	(100)
Alkali sink scrub	10,895	1,014	(9.3)	4,135	(38.0)	5,149	(47.3)	5,746	(52.7)
Big sagebrush scrub	9,601	8,108	(84.5)	837	(8.7)	8,945	(93.2)	655	(6.8)
Blackbush scrub	132,603	87,343	(65.9)	4,497	(3.4)	91,840	(69.3)	40,763	(30.7)
Chamise chaparral	28,593	0		0		0		28,593	(100)
Cottonwood-willow riparian forest	11,533	6,793	(58.9)	1,571	(13.6)	8,364	(72.5)	3,170	(27.5)
Creosote bush scrub	4,025,617	459,004	(11.4)	1,058,864	(26.3)	1,517,868	(37.7)	2,507,749	(62.3)
Desert holly scrub	21,716	2,190	(10.1)	17,452	(80.4)	19,641	(90.4)	2,075	(9.6)
Desert wash scrub	34,496	4,902	(14.2)	1,893	(5.5)	6,795	(19.7)	27,700	(80.3)
Fan palm oasis	33	0		0		0		33	(100)
Freshwater seep	388	0		0		0		388	(100)
Gray pine-oak woodland	2,678	49	(1.8)	0		49	(1.8)	2,629	(98.2)
Greasewood scrub	3,662	0		1,947	(53.2)	1,947	(53.2)	1,715	(46.8)
Hopsage scrub	6	5	(83.3)	1	(16.7)	6	(100)	0	
Interior live oak woodland	589	0		0		0		589	(100)
Jeffrey pine forest	1,811	1,811	(100)	0		1,811	(100)	0	
Joshua tree woodland	10,383	4,763	(45.9)	269	(2.6)	5,032	(48.5)	5,351	(51.5)
Juniper woodland	87,167	6,960	(8.0)	1,434	(1.6)	8,395	(9.6)	78,772	(90.4)
Mesquite bosque	7,110	2,491	(35.0)	1,349	(19.0)	3,839	(54.0)	3,271	(46.0)
Mojave mixed woody scrub	689,589	378,795	(54.9)	112,641	(16.3)	491,436	(71.3)	198,153	(28.7)
Mojave riparian forest	4,687	28	(0.6)	0		28	(0.6)	4,659	(99.4)
Montane meadow	966	0		0		0		966	(100)
Montane riparian scrub	2,228	203	(9.1)	238	(10.7)	441	(19.8)	1,787	(80.2)

Native grassland	3,375		0	68	(2.0)	68	(2.0)	3,306	(98.0)
Northern mixed chaparral	992	992	(100)		0	992	(100)		0
Pinyon pine woodland	18,773	12,077	(64.3)	1,171	(6.2)	13,248	(70.6)	5,525	(29.4)
Pinyon-juniper woodland	158,329	84,581	(53.4)	12,022	(7.6)	96,603	(61.0)	61,727	39.0)
Rabbitbrush scrub	7,842	92	(1.2)		0	92	(1.2)	7,750	(98.8)
Scrub oak chaparral	36,385	23,106	(63.5)		0	23,106	(63.5)	13,279	(36.5)
Saltbush scrub	591,713	18,897	(3.2)	218,872	(37.0)	237,769	(40.2)	354,144	(59.8)
Semi-desert chaparral	128,230	3,855	(3.0)	5,156	(4.0)	9,010	(7.0)	119,220	(93.0)
Shadscale scrub	38,602	7,194	(18.6)	31,418	(81.4)	38,602	(100)		0
TOTAL	6,070,651	1,115,253	(18.4)	1,475,835	(24.3)	2,591,088	(42.7)	3,479,563	(57.3)

The table excludes acreage in the GIS database describing landforms (lava, lakes, playas), disturbed lands (agriculture, urban) and disturbed plant communities (non-native grassland, ruderal).

Total in area excludes military lands.

Existing conservation includes ACECs, Wilderness, National Parks, State Parks, CDFG Ecological Reserves.

New conservation includes the HCA for this alternative. Los Angeles County SEAs are excluded.

Potential incidental take includes areas not under specific conservation and available for development or other use. Actual loss of these communities is dependent on location, development trends and land ownership.

4.6.2.2 Desert Tortoise

The single DWMA of this alternative would comprise 1,118 mi^2, including the southern portion of the Fremont-Kramer DWMA east of Highway 395 and much of the Superior-Cronese DWMA, and would not include either the Ord-Rodman or Pinto Mountain DWMAs associated with Alternative A. The single DWMA would be managed somewhat more restrictively than those of Alternative A, and enhanced recreational opportunities would prevail outside the DWMA. The benefits and residual impacts discussed in Table 4-59 and afterwards would likely result.

Alternative E is substantially different from most other alternatives, but shares the following benefits and residual impacts with Alternative A: Education Program, Energy & Mineral Development, Plant Harvest, and Weed Control.

Table 4-59
Tortoise Impacts of Alternative E

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
Pinto Mtn. DWMA Excluded • Exclusion of the Pinto Mountain DWMA would be somewhat minimized by the following factors: • Joshua Tree National Park manages 326 mi^2 of tortoise habitat within the planning area, including all contiguous areas east, west, and south of the excluded Pinto Mtn. DWMA, so similar habitats would still be proactively managed, and not subject to impacts associated with BLM's multiple-use mandate • Excluded area is relatively isolated, having no above average human disturbance polygons; except for mining impacts in the local Dale Mining District, the DWMA is relatively undisturbed and likely to remain so over the next 30 years • Excluded area is comprised of 157 mi^2 of public lands, and is therefore not susceptible to urbanizing impacts as occur on private lands. It is significant that 170 mi^2 of 183 mi^2 in the Pinto Mtn. DWMA are • Exclusion would not affect any identified regions of higher tortoise densities	Pinto Mtn. DWMA Excluded • No representative parts of the Southern Mojave that are ecotonal with the Colorado Desert would be managed for proactive tortoise conservation by the BLM, which detracts from region-wide tortoise protection on public lands. Representative plant communities, not found elsewhere within the planning area, would be excluded • Although the 2001 encounter rate of distance sampling was relatively low, suggesting low population densities, Pinto Mtn. was also the one DWMA surveyed in the West Mojave with the fewest carcasses, and no evidence of catastrophic die-offs, so the population has apparently not been affected in this manner, and may be relatively stable. • Only 13 of 424 (3%) of the tortoises observed in recent surveys had clinical symptoms of URTD or cutaneous dyskeratosis, but none was observed in the Pinto Mtn. area. • If the die-offs observed in the late 1980's at the DTNA and more recently throughout the Superior-Cronese DWMA are due to URTD, excluding the Pinto Mtn. DWMA would constitute a significant adverse impact to region-wide tortoise conservation, as it would have served as a relatively disease-free refugium • The Pinto Mtn. and JTNP areas, combined, would have comprised about 1,000 mi^2, which is the target size for tortoise conservation areas identified in the Recovery Plan
Ord-Rodman DWMA Excluded • No minimizing conditions, as described above for Pinto Mtn., were identified for excluding this DWMA	Ord-Rodman DWMA Excluded • Would not provide DWMA-level management for the one region with the highest distance sampling encounter rate observed in the entire listed range; a total of 80 mi^2 of higher density tortoise areas would not be included • Without this DWMA, there would be no proactive conservation of the main region of the South-central Mojave ecotype occurring within the planning area; cattle grazing and OHV use, in particular, would likely increase without protective measures associated with Alternative A DWMA management • No catastrophic die-offs have been observed in this region, although a smaller recent die-off has been identified just south of I-40. This DWMA is isolated from other tortoise concentration areas, having both positive and negative ramifications relative to disease, as described in Chapter 3. It would not be available to serve as a disease-free refugium should catastrophic die-offs extirpate tortoises within the one DWMA. • If catastrophic die-offs are associated with drought, tortoises in this region are less likely to be affected, as monsoonal rains characterize the area, providing climatic conditions and plant growth that are more favorable to tortoise health than in areas to the north and west

BENEFITS	RESIDUAL IMPACTS
Effect on Tortoise Recovery • Satisfies recovery criterion that at least one DWMA be established and that it be at least 1,000 mi^2 in size	Effect on Tortoise Recovery • Tortoises would be substantially more susceptible to extinction from stochastic events due to the contiguity and relatively small size of the one DWMA compared to Alternative A DWMAs. Wild fires, spread of disease, localized droughts, and other "natural" impacts could eliminate tortoises with little likelihood of immigration. Eliminating the Ord-Rodman and Pinto Mtn. DWMAs would increase this likelihood, as those tortoise refugia would not be managed to minimize impacts of natural, random events • This Alternative would result in putting more tortoises in harm's way with regards to the newly expanded Fort Irwin boundaries. The northern DWMA boundary of Alternative A is 135 miles long, compared to 99 linear miles in Alternative E. Although both alternatives have common boundaries with the expanded installation, 56% of the northern boundary of Alternative E versus 41% of that of Alternative A shares a common boundary. The Alternative E DWMA, then, would share 15% more of its northern boundary with the installation than Alternative A. As such, it would be considerably more vulnerable to indirect impacts of Army training (i.e., sink effect, increased dust, noise, etc.) than Alternative A, which would constitute a significant adverse impact to the over all strategy
Recent and Current Tortoise Occurrence **Includes**: • 1,118 mi^2 (10% of the 2002 range) within *one* DWMA • Good representation in central part of 2002 range • 299 mi^2 (53%) of higher density areas • 212 of 424 (50%) observed tortoises • 1,042 mi^2 (40%) of USFWS critical habitat • 494 mi^2 of BLM Category I (50%) and 146 mi^2 of Category II (39%) habitats	Recent and Current Tortoise Occurrence **Does not include**: • 10,016 mi^2 (90%) within the 2002 range • Poor representation to the west and in periphery of range • 263 mi^2 (47%) of higher density areas • 212 of 424 (50%) observed tortoises • 1,569 mi^2 (60%) of USFWS critical habitat • 488 mi^2 of BLM Category I (50%) and 224 mi^2 of Category II (61%) habitats • Importantly, this alternative would fail to include the 40 mi^2 DTNA, which is the only place currently expressly managed for tortoises. Available data suggest that this is one of the few places within older die-off areas where there is reproduction and recruitment, as evidenced by 8 of 13 (61%) tortoises observed there being subadults
Land Management Within DWMAs • Fencing the periphery of the one DWMA would have the same positive and negative impacts described in Alternative A and C • Recommendation to translocate tortoises from nearby impact areas into the one DWMA, and prohibition of mass translocations, are same as Alternative A	Land Management Within DWMAs • As discussed in Alternative F, it would appear that both older and newer die-off regions have affected much of the Superior-Cronese DWMA associated with Alternative A. About 2/3 of this alternative's DWMA occurs north of Highway 58, where recent die-offs have been detected. The distribution of these recent die-offs is particularly significant for the one DWMA, as most of the tortoise populations there have either been directly affected or are likely to be in the very near future

BENEFITS	RESIDUAL IMPACTS
Land Management Adjacent to DWMAs • Would result in no common boundaries between the one DWMA and BLM open areas, so would distance these existing (and future) impacts from the DWMA	Land Management Adjacent to DWMAs • As a result of this alternative, the cumulative size of "adjacent" areas would be substantially enlarged, including critical habitat and existing management areas that would no longer be managed for tortoise conservation; the ramifications of this are given throughout this table
DESIGNATION AND MANAGEMENT OF ONE DWMA AS AN ACEC	
Size Relative to the Existing Tortoise ACEC • Net increase of 701 mi^2 of public lands in ACECs, which is 17 times larger than the DTNA at 40 mi^2, which even under this intense recreation scenario, would be substantially better than the current situation	Critical Habitat versus New DWMAs • As reported above, a total of 1,569 mi^2 of critical habitat would not be included in the one DWMA, which would substantially increase the management problem of how critical habitat outside DWMAs would be managed, assuming the USFWS would not eliminate critical habitat designations from non-DWMA lands • The USFWS defines critical habitat as "essential habitat." In light of older and newer die-off regions, there is no justification for making essential habitats smaller; if anything they should be larger; this is significant adverse impact for this alternative
BLM ACEC Management • ACEC management would be relatively more restrictive to human uses in the one DWMA than under Alternatives A, C, and D, as given elsewhere in this table	BLM ACEC Management
BLM Management of Category I, II, & III Habitat • Reclassification of all public lands in the one DWMA as Category I Habitat, and remaining public lands as Category III Habitat, which would provide relatively more protection inside the DWMA	BLM Management of Category I, II, & III Habitat • Existing Category I & II habitats (710 mi^2) habitats on public land outside the DWMA would be changed to Category III, replacing relatively protective goals (maintaining and/or increasing stable, viable populations in Category I & II) with less protective ones (limit declines through mitigation in Category III)
Plan Implementation	Plan Implementation • The ITA would be 2,171mi^2, compared to 1,118 mi^2 in the one DWMA where conservation would be intended to offset the authorized take, which is a significant adverse impact
Federal Permitting • Standardized, stream-lined permitting would occur as in Alternative A, with the following exceptions: • Level 1 BMPs would apply to the 1,118 mi^2 DWMA, and Level 2 BMPs would be applied to the remaining Survey Areas, including critical habitat • The Survey Area size would not change relative to Alternative A, although presence-absence surveys would no longer be applied to 1,190 mi^2 of lands that would have been surveyed under Alternative A	Federal Permitting • Alternative would substantially detract from USFWS minimization and mitigation standards, as it would fail to mitigate impacts to the "maximum extent *practicable*," it would substantially fail to achieve recovery standards in terms of reserve design and other specified variables, it would apply Level 2 BMPs to lands outside the DWMAs (including critical habitat) that would receive Level 1 BMP protection under Alternative A, and it would result in increased uses that are known to impact tortoises and habitats in spite of the new data that show tortoises are not as common as they were believed to be in 1990 when the tortoise was listed or 1994 when the final Recovery Plan was issued
State Permitting • Same as given above for Federal Permitting	State Permitting • CDFG's fully minimize and mitigate standard would be substantially undermined for the same reasons given above for federal permitting

BENEFITS	RESIDUAL IMPACTS
Compensation & Fee Structure • Compensation would be implemented as given in Alternative A, except the expanded ITA and reduced DWMA would result in substantially less compensation fees than would result in Alternative A; even so, the smaller DWMA land base would result in fewer conservation programs requiring funding	Compensation & Fee Structure
MULTIPLE USE FROM CLASS M AND UNCLASSIFIED PUBLIC LANDS TO CLASS L IN ONE DWMA	
Size and Distribution within One DWMA • Would result in the reclassification of 373 mi^2 of Class M (284 mi^2) and unclassified public lands (89 mi^2) to Class L in the one DWMA • Changing BLM Class M and unclassified public lands to Class L status in the one DWMA would resolve impacts associated with Class M and unclassified lands, and provide for beneficial effects of Class L management (see Alternative A) • This change would mostly affect those portions of the one DWMA that correspond to the Superior-Cronese DWMA of Alternative A, where 244 mi^2 of Class M would be reclassified as Class L	Size and Distribution within One DWMA • See discussion in Alternative A • There is a general concept that smaller areas would be substantially more affected by external influences (i.e., both direct and indirect effects) than larger areas. If, for example, the indirect impacts affect an area of one linear mile inside a given boundary, substantially more of the 1,000-acre DWMA would be compromised than in the 2,400-acre DWMA of Alternative A.
• 117 mi^2 (21%) of higher tortoise densities would be managed as Class L	• 85 mi^2 (15%) of higher tortoise densities would be managed as Class M • 25 mi^2 (4%) of higher tortoise densities would be managed as Class U
1% ALLOWABLE GROUND DISTURBANCE	

BENEFITS	RESIDUAL IMPACTS
Function to Minimize Impacts • Benefits of minimizing impacts to 1% of the DWMA land base would be proportionate to its size and location; in this alternative 1% of the DWMA corresponds to 7,156 acres (11 mi^2), which would still have the benefits given in Alternative A, but to a somewhat less degree	Function to Minimize Impacts • Impacts given in Alternative A would still apply, but would be relatively more significant given the smaller DWMA size. All 661mi^2 of private lands in Kern County, for example, would be available development as opposed to 315 acres (0.5 mi^2) corresponding to 1% of Alternative A DWMAs that would not be included • 1% AGD was a concept based on substantially larger DWMAs and substantially smaller ITAs; its application to this alternative with a substantially smaller DWMA and substantially larger ITA would undermine the effectiveness of the concept. This would argue for at least a 2% AGD to be relative to the smaller DWMA, which is about twice as small as the alternative for which the concept was originally determined. Failure of the alternative to identify a concomitantly larger AGD may result in significant adverse impacts
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
Acquisition Priorities • Under this alternative, a total of 398 mi^2 of private lands would occur in the smaller DWMA, which would cost $127,385,500 based on the assumption of $500/acre land costs; although still expensive, this compares to $212,480,000 to purchase all private lands in Alternatives C and D. Although it would cost about $214,083,500 to acquire private lands in Alternative A DWMAs, Alternative A could function without the need to purchase all private lands	Acquisition Priorities • Would fail to acquire private lands outside the one DWMA (i.e., particularly in the Ord-Rodman DWMA and south of Edwards Air Force Base) in higher density tortoise areas
BLM Management • Prioritizing acquisition within the DWMA while ensuring no net loss of private land acreage from the planning area would have similar advantages as given in Alternative A in terms of facilitating BLM DWMA management	BLM Management
BLM Land Tenure Adjustment (LTA)	BLM Land Tenure Adjustment (LTA) • If new land tenure adjustment would result in the disposal of public lands located outside of the one DWMA, both tortoises and habitats would be significantly impacted, depending on the amount and location of disposed lands

BENEFITS	RESIDUAL IMPACTS
NEW AGRICULTURAL DEVELOPMENT	
• Given that all public lands within the one DWMA would be changed to Class L, no new agriculture (including biosolids fields) would be allowed, which is relatively more protective than Alternative A, where agriculture would be allowed on 754 mi^2 of Class M lands and 166 mi^2 of Class U in those DWMAs	• As with Alternative A, agricultural development would still be allowed (though not authorized) on private lands in the one DWMA
COMMERCIAL FILMING ACTIVITIES	
• Commercial filming would be prohibited in the one DWMA, and the proactive program of Alternative A would be applied to all tortoise habitats outside the DWMA	
CONSTRUCTION ACTIVITIES	
• Fee compensation program, 1% AGD, clearance surveys in designated Survey Areas (including all DWMAs), implementation of BMPs, and other programs would result in significant beneficial impacts within the DWMA	• Programs implicated in left column would either not function or the benefits would be substantially diminished outside the one DWMA
DISEASE MANAGEMENT	
• The most effective disease management program would be applied to regions of higher density tortoise occurrence, which would still occur in the one DWMA • The "Disease Management Trust Fund" would be provided, with the same advantages and disadvantages given in Alternative A	• Disease management would not likely occur outside the DWMA, so that any advantages would not be applied to those higher density tortoise areas (i.e., particularly in the excluded Ord-Rodman DWMA and south of Edwards Air Force Base)
DROUGHT	
<u>Motorized Vehicle Access</u> • There are a total of 2,059 linear miles of digitized, existing routes in the one DWMA, 801 linear miles of which (39%) would be closed • As in Alternative A, the prevalence of roads in washes that are designated as open would determine, in part, the effectiveness of minimizing impacts most likely to occur during drought. In this alternative, 83 linear miles (63%) of 131 linear miles indicated as wash routes would be closed, compared to 48 linear miles (37%) left open in washes	<u>Motorized Vehicle Access</u> • The relatively small percentage of route closures would result in a significant adverse impact to tortoise conservation in the one DWMA. The one DWMA is supposed to be managed somewhat more protectively than Alternative A DWMAs, for example. However, one sees that only 39% of the existing routes are closed in this relatively small area, compared to a 44% reduction in the alternatives under which larger DWMAs would be established. In addition to the relatively small reduction, the alternative would allow for increased recreational impacts in many other tortoise habitats outside the DWMA, which exacerbates the impact.
FERAL DOG MANAGEMENT	

BENEFITS	RESIDUAL IMPACTS
• As in Alternative A, a Feral Dog Management Plan would be developed, and its application would be somewhat facilitated by the smaller DWMA size	• Would fail to address and protect tortoises in non-DWMA areas, which would most likely affect higher density tortoise areas in the excluded Ord-Rodman DWMA and south of Edwards Air Force Base
FIRE MANAGEMENT	
• Enhanced fire fighting management program of Alternative D would be applied to the one DWMA	• As given above, the relatively small size of the one DWMA makes it more vulnerable to both the effects of fire and the relative impacts of fire fighting activities
CATTLE GRAZING ON BLM ALLOTMENTS	
Voluntary Relinquishment • Same as Alternative A	Voluntary Relinquishment • Same as Alternative A
No Exclusion Areas Designated • Removing grazing authorization from the Harper Lake and Cronese Lakes allotments would be more effective than implementing the exclusion area concept of Alternative A; would better serve to protect tortoises in the southern part of Harper and eastern part of Cronese Lakes, which in Alternative A correspond to cattle concentration areas that are outside exclusion areas	No Exclusion Areas Designated • No exclusion areas would be designated for the Ord Mountain Allotment, so that seasonal restrictions and utilization levels given in Alternative A would not apply; this would perpetuate current impacts and likely result in competition between cattle and tortoises, but not any more so than Alternative A, as the Exclusion Area concept would also fail to avoid impacts; significant impacts would likely result
Cattle Management on Ord Mountain Allotment	Cattle Management on Ord Mountain Allotment • Since the Ord-Rodman DWMA would not be designated, the following prescriptions would not be implemented, the benefits given in Alternative A would not apply, and the impacts would persist: • New range fences would not be installed, so current cattle trespass would continue to impact tortoise concentration areas north and south of the allotment •Ephemeral allocations and temporary non-renewable grazing permits could continue to be authorized in all areas, which would allow additional cattle to be put on the allotment during years of favorable annual plant production, which may lead to relatively more impacts to tortoises, concomitant with elevated cattle use • There would be no requirement to remove carcasses within two days, so that discretionary removal may lead to providing an otherwise unavailable food source to tortoise predators • There would be no new requirement or timeline for completion of health assessments, which would result in failure to identify and remedy non-compliance issues in a timely manner, or to identify places where remedial actions are required to achieve health standards
SHEEP GRAZING ON BLM ALLOTMENTS	
No Sheep Grazing in DWMAs • Most of the allotments encompassed by the one DWMA were effectively retired from grazing with the issuance of the USFWS BO, so prohibition of sheep from the DWMA would have no new beneficial impact; removal of those allotments from the CDCA Plan would result in no likelihood of grazing in next 30 years	No Sheep Grazing in DWMAs • Sheep grazing would continue to occur on the 14 mi^2 of the Shadow Mountain Allotment • Would result in continued sheep grazing on 1,733 acres (3.0 mi^2) of critical habitat on the Shadow Mountain Allotment

BENEFITS	RESIDUAL IMPACTS
Utilization Levels and Combined Bands • The utilization of 230 pounds ephemeral dry weight per acre and minimizing sheep bands to 1,600 head, would not be implemented, but were similar enough to current management that beneficial impacts are likely to be minimal	Utilization Levels and Combined Bands • Under the prescription, current management would prevail and be applied to the allotments given above
GUZZLERS	
• All guzzlers within the one DWMA would be assessed and problems remedied, as for Alt A	• Same as Alternative A
HABITAT CREDIT COMPONENT	
Applications and Success Criteria • As in Alternative A.	Applications and Success Criteria • Same as Alternative A, but somewhat more adverse given the smaller sized DWMA
HEAD STARTING PROGRAM	
• Implementing the head starting program of Alternative A inside the one DWMA and collecting gravid females from adjacent areas would be most efficacious in the northern and northwestern portions of the DWMA where populations levels are low; otherwise the same as Alternative A	• Would fail to repopulate areas northwest of the one DWMA that were shown to support significantly higher numbers of tortoises as recently as the 1970's • Given the reliance of the smaller area to ensure conservation and and promote recovery, alternative would be less to succeed than a program implemented in multiple areas
LAW ENFORCEMENT	
• The proposal to employ two new law enforcement rangers and two new technicians to enforce regulations in the one DWMA is consistent with Alternative A (i.e., both alternative call for a total of four new personnel per DWMA), so a similar level of new enforcement personnel would be employed, and beneficial impacts of Alternative A apply	• Same as Alternative A
MOTORIZED VEHICLE ACCESS NETWORK	
Overall Importance • Designating and implementing a motorized vehicle access network that is supported by land use laws and compatible with tortoise recovery would be substantially more important if this alternative is to function to minimize and mitigate impacts authorized in a substantially larger ITA	Overall Importance

BENEFITS	RESIDUAL IMPACTS
Route Reductions in Specified Regions • In the one *DWMA*, the network would result in the closure of 801 linear miles (out of 2,059 linear miles) of routes, which is a 39% reduction. This would have both immediate and long-term benefits • Within *higher density areas*, the network would result in the closure of 313 linear miles of routes (out of 727 linear miles), which is a 43% reduction of routes in this area. This would have immediate and long-term benefits where tortoises are most abundant • Within *lower density areas*, the network would result in the overall reduction of 488 linear miles of routes (out of 1,332 linear miles), which is a 37% reduction of routes in this area. This would have immediate benefits to habitat and long-term benefits to overall conservation • Within *above-average vehicle disturbance areas*, there are 353 linear miles of existing routes, 156 linear miles (44%) of which would be closed.	Route Reductions in Specified Regions • Use of the remaining 1,258 linear miles of open routes in the *DWMA*, representing 61% of existing routes, would continue to result in permitted and un-permitted impacts. This would constitute a significant adverse impact, as the one DWMA is supposed to be managed somewhat more proactively for tortoise conservation to offset authorized development impacts and increased recreational opportunities. • The remaining 414 linear miles of open routes (57% in area) in *higher density areas* would continue to result in impacts, and put tortoises in harm's way in the places where they are most likely to be adversely affected • The remaining 844 linear miles of open routes (63%) in *lower density areas* would continue to result in impacts to the few remaining animals, which are critical for re-establishing reduced or extirpated populations • The remaining 197 linear miles within *above-average vehicle disturbance areas* (56%) would remain open and continue to put tortoises in harm's way where traditional vehicle impacts are shown to be most prevalent
RAVEN MANAGEMENT	
Application • All measures in Alternative A would be pursued and implemented	Application • Contingency corridors running through the Ord Mountain area would not be considered in the context given in Alternative A • Barstow landfill would continue to subsidize predators and adversely affect higher density areas located in the immediate vicinity
RECREATION ACTIVITIES	
Expansion of Spangler Hills Open Area • Expansion of the Spangler Hills open area to the south onto 24 mi^2 would result in new, focused vehicle impacts in an area of relatively low tortoise concentration, including 11 mi^2 of non-critical habitat, and 7 mi^2 of habitats that are already degraded by vehicle impacts	Expansion of Spangler Hills Open Area • Expansion would result in increased cross-country travel, visitor use, and other impacts that would adversely affect resident tortoises. Although no higher density tortoise areas would be directly affected, the expansion would result in increased impacts to 13 mi^2 of critical habitat and 16 mi^2 of current Category I Habitat
Competitive "C" Routes in Spangler Hills	Competitive "C" Routes in Spangler Hills • "C" Routes are associated with the Spangler Hills Open Area, were used for competitive events originating and ending in the open area but extending into adjacent areas, and became no longer available as a result of the recent settlement between the BLM and Center for Biological Diversity. Reopening these routes will result in impacts both inside and outside the open area

BENEFITS	RESIDUAL IMPACTS
Expansion of Johnson Valley Open Area	Expansion of Johnson Valley Open Area • Expanding the Johnson Valley Open Area into 23 mi^2 of the Cinnamon Hills would constitute a significant adverse impact to the concentration of tortoises in the northern part of Lucerne Valley. Of the 24 mi^2 of higher density tortoise areas, the expansion would directly impact 20 mi^2, or 83% of that area, and overtime could extirpate tortoises from the northern Lucerne Valley • Expansion would result in 18 mi^2 of critical habitat being affected by Class I management, which would place recreational use as a higher priority than tortoise conservation • Protections provided by DWMA management would not be in place, uses would be less regulated, and concomitantly more prevalent and significant. Adjacent public lands to the west would continue to be managed as Category II Habitat and Class L, which would minimize impacts of new development but have no effect in minimizing direct and indirect OHV impacts • Local extirpations would be expected, and direct impacts to adjacent populations would likely increase, seriously compromising a subpopulation that is already threatened by its proximity to the existing open area and the urbanization of Lucerne Valley, which would constitute a significant adverse impact
Creation of New Fremont Recreation Area • 53 mi^2 of Class L lands would be converted to Class M, which would result in relatively more impacts, but not as severe as would occur if the area was newly designated as Class I (the status of official BLM open areas) • Although establishing the new recreation area would constitute a significant impact (see right column), impacts would be relatively less significant than if the area were being designated as an Open Area	Creation of New Fremont Recreation Area • Creating the new Fremont Recreation Area on 53 mi^2, all of which is critical habitat, would constitute a significant adverse impact, more so to essential habitat than to resident tortoises, which are largely extirpated from the region; although no higher density tortoise areas would be affected, there are also no higher density human use areas (excepting areas around the south part of Cuddeback Lake, east of Fremont Peak), so much of the habitat is relatively undegraded • The new recreation area designation would result in concentrated and elevated vehicle use that would not be compatible with tortoise recovery, and would result in degradation of critical habitat • Severity of impacts would be dependent on authorized and restricted uses given in the recreation area management plan to be prepared for the area. If the management plan allows for off-road travel adjacent to the route instead of restricting vehicles to the racecourse route, for example, the impacts would be relatively more severe. In either case, the new recreation area would receive more vehicle use and result in more cross-country travel, litter and garbage (with a likely increase of ravens), camping, and other activities that would adversely affect tortoises and habitat • Relatively more approved routes would have a concomitant level of impact to tortoises and habitat than if fewer routes were designated as open

BENEFITS	RESIDUAL IMPACTS
Competitive Speed Events • Those competitive events that employ a "staggered start" would have relatively less impacts than under the "mass start" scenario described to the right, so that most impacts adjacent to the racecourse would result from passing, using or creating paths adjacent to the racecourse, or loss of control	Competitive Speed Events • Competitive motorcycle events would be allowed and subject to Class M guidelines, which would allow for relatively more impacts than Class L and relatively less than Class I; impacts would also be more prevalent on unclassified lands • Unlike dual sports, which are restricted to approved routes of travel, competitive motorcycle events are not restricted to roads and would result in substantially more impacts to tortoises and particularly habitats • In those events that employ "mass starts" (e.g., European and Hare Scrambles, Hare and Hound Scrambles, Grand Prix, etc.), cyclists are spread out at the start, race cross-country for a short distance, then enter the racecourse route, and more or less remain on the road thereafter, except for passing and use of parallel routes; off-road travel adjacent to the course is not prohibited, so route widening and proliferation would likely occur
Management of Enduros and Dual Sports • Although competitive in nature, impacts of enduros are more like those of dual sports (minimal) than like competitive events (maximum) • Prohibiting competitive events (excepting enduros) from the one DWMA would constitute a beneficial impact that would effectively avoid loss of tortoises and degradation of habitat • Allowing organized vehicle events (including dual sports) in the one DWMA would not constitute a significant impact, so long as regulated by the biological opinion for that use	Management of Enduros and Dual Sports • The enduro course that would run from El Mirage to Spangler Hills would pass through 18 linear miles of the one DWMA, and 8 linear miles through higher density areas, which may adversely affect tortoises depending on event timing and other considerations (i.e., locations of pitting, stopping, and starting points) • The alternative does not identify a timeframe for conducting enduros, which may have significantly more impacts to tortoises than dual sports, which are restricted to the winter inactivity period of most adult tortoises. Like dual sports, there would still be some potential impact to tortoises (particularly juveniles), which may be active in the late fall and winter • Although participants in enduros and dual sports would remain on the designated route, adverse impacts would occur in pitting, staging, and starting areas; any such concentrated use areas occurring in the one DWMA would constitute a significant adverse impact
Competitive Events North of El Mirage Open Area	Management of Competitive Events • Competitive vehicle events between Shadow Mountain Road and the El Mirage Open area would occur in a 9 mi^2 area. This area does not include any higher density tortoise areas, but is critical habitat and managed as Class L • Authorization of motorcycle events in the area would occur north of the open area fence line, which was intended to restrict all vehicle impacts to the open area, and result in impacts to tortoises and habitats where they are not intended to occur

BENEFITS	RESIDUAL IMPACTS
Competitive Event Corridors	Competitive Event Corridors • Competitive events would be authorized in both the Stoddard-to-Johnson Valley and Johnson Valley-to-Parker corridors in the absence of yellow flag conditions, because the single DWMA would not be crossed; although the Stoddard-to-Johnson corridor would be reconfigured to avoid higher density areas in northern Lucerne Valley, it would bisect the higher concentration area to the north, adjacent to Highway 247; significant adverse impacts are likely to occur in the absence of protective stipulations
Other Conservation Measures • There would be substantial cost savings associated with dropping the following programs because the one DWMA would not share any common boundaries with open areas: • No need to sign those portions of Stoddard Valley, Johnson Valley, and El Mirage open areas as there would be no adjacent DWMAs • No need to fence the boundary between the Johnson Valley Open Area and the excluded Ord-Rodman • Camping, stopping, and parking restrictions in the DWMA would be the same as those identified in Alternative D, having the same beneficial impacts	Other Conservation Measures • Higher density areas in northern Lucerne Valley and north of El Mirage would continue to be adversely affected by dropping the programs given to the left • Camping, stopping, and parking restrictions would not be changed from current management in areas outside the DWMA, which would perpetuate current impacts, and particularly affect higher density areas in the Ord Mountains and south of Edwards Air Force Base
Gunshot Impacts • As in Alternative D, no shooting or hunting would be allowed anywhere within the one DWMA, which would serve to protect tortoises in a majority of the areas where they are most likely to be encountered	Gunshot Impacts • In the absence of increased law enforcement, reduced route density, and other protective programs, gunshot mortalities would continue, unabated, to affect higher density areas, which are mostly in the excluded Ord-Rodman area and south of Edwards Air Force Base
TRANSPORTATION	
Highway and Road Fencing • Maintaining fencing priorities and ensuring that OHV recreation access would not be substantially impaired would be the same as Alternative A, since all alternatives where fencing would be installed would require coordination among the BLM and affected publics to ensure that portals across paved roads, open area boundary fencing, etc. would provide for adequate access • Highway 395 would still be fenced along 28 linear miles between the southern boundary of the one DWMA and just north of Kramer Junction	Highway and Road Fencing • Same as described in Alternative A and elsewhere • Highway 395 would not be fenced along 27 linear miles occurring north of the one DWMA boundary, which would perpetuate loss of tortoises along the stretch of road, but not as many as would likely occur to the south where fencing would be installed
UTILITIES	

BENEFITS	RESIDUAL IMPACTS
Utility Corridors and New Construction • Management affecting utility corridors would be the same as Alternative A, except within the Ord Mountain area	Utility Corridors and New Construction • Same as given in Alternative A and elsewhere • Depending on the location and configuration, new wind power facilities would not be restricted to utility corridors and would have relatively more adverse impacts in the one DWMA • Specific guidelines for corridors in the Ord Mountain area would not apply, providing for less protection

This alternative is predicated on the assumption that intensive management in a smaller DWMA would ensure tortoise conservation and promote recovery while simultaneously allowing for increased recreational opportunities outside the DWMA. The DWMA configuration would encompass all higher density tortoise areas in the Fremont-Kramer and Superior-Cronese DWMAs of Alternative A, with the exception of 47 mi^2 south of Edwards Air Force Base and west of Highway 395. It would fail to encompass 80 mi^2 of similar habitat in the Ord-Rodman DWMA, and would not provide proactive tortoise conservation for animals in the Pinto Mountain DWMA, where densities appear to be lower, not recently subject to catastrophic die-offs, and possibly relatively disease-free, based on available data.

Compared to Alternative A, the 1,863 mi^2 Incidental Take Area would be substantially expanded and the 2,693 mi^2 DWMA would be substantially reduced, which would seriously undermine the likelihood of achieving minimization and mitigation standards required by the USFWS and CDFG. The single DWMA would be substantially more vulnerable to extinction from stochastic events, and far more susceptible to epidemic spread of disease. Ironically, culverts left open beneath Highway 58 to avoid fragmenting regional tortoise populations may have allowed diseased tortoises to move from north of the highway to the south. Therefore the higher concentration areas within the one DWMA may already be susceptible to die-offs in the near future, which would seriously compromise the conservation value of this alternative.

Prevailing theories for region-wide, catastrophic die-offs suggest that disease, drought, or a combination of the two are responsible, and that tortoises die in a one or two-year period, as evidenced by the similar time since death for observed carcasses. It would appear that older and newer die-off regions have already significantly affected tortoises in the northern portions of the Fremont-Kramer and Superior-Cronese DWMAs, respectively (see discussion following Alternative F). Whether diseased or enduring prolonged drought, both conditions result in physiological stresses that leave tortoises in a weakened, malnourished, water-imbalanced condition. One hypothesis is that URTD in wild tortoises resulted from contact with ill captive animals released into the desert (i.e., pathogen recently introduced to wild populations). The other hypothesis is that the mycoplasma organism responsible for URTD has always been present in the population (i.e., pathogen a "natural" part of the population, not recently introduced), but does not express itself in mortality until tortoises are faced with other environmental stressors, such as drought.

In either case, many proponents of both theories believe that additional, human-related stressors are sufficient to kill tortoises that are already in a weakened state. Some of these human stressors have occurred for a 100 years (i.e., livestock grazing) and have already resulted in degraded habitats of lower nutritional quality (i.e., more non-native plants of lesser nutritional quality), inferior burrowing potential (i.e., physical removal of shrubs, which are preferred by tortoises for burrowing, by cattle and particularly sheep), and other suboptimal habitat conditions. Other human stressors are relatively recent, having been newly introduced over the past 20 to 30 years (e.g., urbanization, ground-based military maneuvers, OHV use, highways and freeways), and have resulted in habitat loss and degradation, poor air quality, and extensive habitat fragmentation. Tortoises that may (or may not) have harbored the URTD pathogen have been subjected to drought cycles over the past several thousand years. Historically, they were able to tolerate these stressors, but are unable to do so now because of poor habitat quality associated with human uses and impacts.

Regardless of these suspected (and unexpected) factors, catastrophic die-offs have occurred and will continue to occur, regardless of the conservation strategy that is ultimately implemented. The one DWMA alternative is more susceptible to failure because it would relegate conservation to a single (albeit large) conservation area, and would promote recreational and grazing uses that result in habitat degradation and tortoise mortality over much of the remaining area. It also fails to incorporate principles of reserve design that call for multiple conservation areas. The alternative would have been substantially more effective had the Ord-Rodman and Pinto Mountain areas been established and managed as "contingency DWMAs," to counteract the foreseeable possibility that the one DWMA population may crash. These relatively small areas of critical habitat are isolated from the one DWMA, and would not be susceptible to spread of epidemic disease(s) from the one DWMA. If drought is responsible for the die-offs, excluding the Ord-Rodman DWMA would be a fatal flaw to the successful function of the alternative, as the Ord Mountain area receives summer rainfall that is uncharacteristic in the one DWMA, and would serve as a drought-tolerant, tortoise refugium.

The alternative is predicated on the assumption that protecting tortoises where they presently occur in relative abundance would be sufficient to ensure species conservation, promote recovery, effectively minimize and mitigate authorized take, and prevent regional extinction. The alternative would fail to achieve this objective for the following reasons:

- All alternatives are vulnerable to catastrophic die-offs, but this alternative is particularly susceptible for the reasons given above. Failure of the alternative to proactively protect the isolated, physically separated populations in the Ord-Rodman and Pinto Mountain DWMAs, is a fatal flaw.

- Even the best available data have inherent temporal weaknesses, meaning that they represent a "snap shot in time," which reveals nothing about previous population levels or current population trends. What are herein defined as "above-average" and "higher density" tortoise areas are based on a data set that was collected between 1998 and 2002. Dr. Berry's studies from the 1970's through early 2000's reveal that tortoise populations, once estimated to occur in excess of 200 tortoises/square mile, have crashed and residual populations currently support fewer than 50 tortoises/square mile. It is

possible that higher density areas identified herein constitute a small fraction of previous population densities; that the current "snap shot" is of a population that is in steady decline; and that limiting proactive management to one DWMA would not function to conserve or recover tortoises.

- Although head starting is proposed under this alternative in a limited manner, and has the inherent weaknesses described in Chapter 3, it would have been applied most effectively to regions that were known to previously support significant tortoise populations, that have experienced significant declines, yet that possess habitat that still appears to be intact and suitable. Given the best available scientific information, lands located northwest of the one DWMA (see Alternative A DWMA boundary for comparison) are the best candidates for repatriation and recovery (i.e., implies re-gaining or re-establishing previous populations). Under this alternative, DWMA management proposed in Alternative A would be replaced with increased recreational opportunities (i.e., expansion of Spangler Hills Open Area, creation of new Fremont Recreation Area, perpetuation of unabated vehicle impacts in the Rand Mountains, etc.) and continued sheep grazing (i.e., Cantil and Cantil-Monolith allotments) in the very areas where tortoise recovery would have been most beneficial.

4.6.2.3 Mohave Ground Squirrel

Alternative E is founded on the assumption that MGS conservation would function within the context of the MGS CA and a single DWMA, the latter of which was designed to protect higher desert tortoise concentration areas. The alternative would allow for enhanced ecosystem protection within the one DWMA and enhanced recreational opportunities outside that DWMA; except for the differences identified, conservation within the MGS CA where it does not overlap with the one DWMA would be similar to the MGS Alternative A proposal.

Similar impacts given for the tortoise and/or MGS (mostly in Alternative A for the two species) would affect the following programs where the two species ranges coincide: Biological Transition Areas (BTAs); Los Angeles County Significant Ecological Area; Sierra Foothills Habitat Connector; Species-specific Conservation Areas; Incidental Take Authorization; Compensation and Fee Structure; 1 % Allowable Ground Disturbance; Best Management Practices; HMP Instead of ACEC Designation; Conservation Relative to Military Bases; Dump Removal and Waste Management; Education; Feral Dog Management Plan; Habitat Credit Component; Habitat Reclamation and Restoration; Mining; Raven Management Plan; Utilities Construction and Maintenance; Motorized Vehicle Access; Non-competitive Events (Dual Sports); Hunting and Shooting; Surveys (Presence-Absence Surveys, Exploratory Surveys, Surveys for Other Species); Transportation (Highway Fencing and Culverts, Road Maintenance); and Monitoring.

Table 4-60 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under previous alternatives for the MGS and tortoise. As such, the programs listed above are not reiterated in the table.

Table 4-60

Mohave Ground Squirrel Impacts of Alternative E

BENEFITS	RESIDUAL IMPACTS
Conservation Area Size of Conservation and Incidental Take Areas • (AE-1) Establishing the single DWMA of 1,118 mi^2 would include 823 mi^2 within the MGS range (11% of the 7,691 mi^2 range). • (AE-1) The alternative would also include 1,870 mi^2 of the MGS CA in Alternative A that is west and north of the one DWMA. The total MGS CA, inclusive of the 823 mi^2 in the one DWMA, would be 2,693 mi^2 (same as Alternative A).	Conservation Area Size of Conservation and Incidental Take Areas • (AE-1) It would exclude 19 mi^2 south of Shadow Mountain Road, which is also within the range.
Management Structure within the MGS CA DWMA Management within the MGS CA • Conservation areas for the Mohave ground squirrel and other species would be established as proposed for Alternative A and has similar benefits.	Management Structure within the MGS CA DWMA Management within the MGS CA
Management Structure within the MGS CA Multiple Use Class Designations • (AE-2) Reclassifying all BLM multiple use class M lands within the DWMA to class L would have the same conservation values as described above, particularly with regards to new agriculture, new construction, and recreation. • Prohibition of competitive and organized off highway vehicle events, commercial filming, and shooting/hunting would all result in fewer impacts than would otherwise occur without the prohibitions, although may not be necessary for dual sports and hunting/shooting, which represent lesser threats to MGS conservation than the other uses. Category I, II, & III and Critical Habitats for Tortoises • (AE-11) The reclassification of all public lands within the single DWMA to Category I would be intended for tortoise protection, but would also benefit the MGS and habitats.	Management Structure within the MGS CA Multiple Use Class Designations Category I, II, & III and Critical Habitats for Tortoises • (AE-11) The reclassification would result in all lands within the MGS CA outside the DWMA being designated as Category III, which would have less conservation value and may promote adverse impacts to the MGS and habitat.
Miscellaneous Conservation Programs Commercial Filming and Plant Harvest	Miscellaneous Conservation Programs Commercial Filming and Plant Harvest • (AE-13) Allowing commercial filming outside the DWMA, including the MGS CA, could result in ground disturbance and habitat degradation that could adversely affect the MGS and habitats.
Miscellaneous Conservation Programs Fire Management • (AE-17) Implementing the fire management program described for Alternative D would have the same positive effects as given in that table above.	Miscellaneous Conservation Programs Fire Management

BENEFITS	RESIDUAL IMPACTS
Miscellaneous Conservation Programs Land Acquisition • (AE-15) Applying acquisition priorities within the DWMA would serve to consolidate public lands and constitute a beneficial impact, but would not be directed toward habitats within the MGS CA. This would be a negligible impact within the MGS CA, as 2,016 mi^2 of it (75% of the MGS CA) is already managed by the BLM.	Miscellaneous Conservation Programs Land Acquisition
Miscellaneous Conservation Programs Law Enforcement • (AE-21) Assigning a minimum of 2 new law enforcement and 2 new maintenance workers to the DWMA would minimize the amount of illegal activity, particularly cross-country travel, with associated benefits.	Miscellaneous Conservation Programs Law Enforcement
Miscellaneous Conservation Programs Signing and Fencing DWMAs • (AE-16) Stated fencing priorities would have minimal benefit to MGS conservation, as described above.	Miscellaneous Conservation Programs Signing and Fencing DWMAs
Livestock Grazing • (AE-22) Modified grazing practices would have the same beneficial impacts described for MGS Alternative A. Prohibiting cattle grazing from the Harper Lake Allotment would minimize grazing impacts on the allotment, which is fully within the range. • (AE-23) Eliminating sheep grazing from 14 mi^2 of public lands between Shadow Mountain Road and the northern, fenced boundary of the El Mirage Open Area would benefit MGS conservation.	Livestock Grazing
Recreation Competitive Events • (AE-7) Allowing enduros between the El Mirage and Spangler Hills open areas would be fully within the range, but vehicles would mostly remain on roads, so resulting habitat degradation would be minimal. • (AE-10) Requiring "yellow flag" restrictions for competitive events within the single DWMA would predictably minimize impacts along the route.	Recreation Competitive Events • (AE-9) Allowing competitive motorized recreation events (not including enduros) between Shadow Mountain Road and the El Mirage Open Area would result in habitat degradation and crushed animals. • (AE-10) Pitting, starting, finishing, and camping areas associated with the competitive events would result in habitat degradation (likely) and potential to crush animals (less likely).
Recreation Existing Open Areas and New Recreational Areas • (AE-6) Although establishing the Fremont Recreation Area would constitute a significant adverse impact (see right), the impacts would be concomitantly more severe if the recreation area were being designated as an open area.	Recreation Existing Open Areas and New Recreational Areas • (AE-6) The newly established Fremont Recreation Area would occur fully within the MGS range and promote cross-country travel and OHV impacts over 53 mi^2 and adjacent areas. • (AE-6) Changing class L to class M, allowing for competitive events, increased camping, and emphasizing vehicle access by allowing for a denser network of trails, etc. would all promote uses that result in habitat degradation (likely) and loss of animals (less likely).

BENEFITS	RESIDUAL IMPACTS
Recreation Stopping, Parking, and Camping • (AE-14) Restrictions relative to stopping, parking, and camping within the one DWMA would cumulatively result in fewer impacts and less habitat degradation.	Recreation Stopping, Parking, and Camping

The balance of advantages and disadvantages would be similar to Alternative A. More protective management of the lands where the single DWMA and the MGS CA overlap would be offset by the additional motorized recreation and access allowed in the lands between the single DWMA and Highway 395, especially within the Fremont Recreation Area and lands where Class L designations were replaced by Class M. As with Alternative D, Alternative E would also result in the reclassification of about 580 mi^2 of multiple use classes to class L, which has relatively more protection than other classes (excepting Class C, which is managed as wilderness).

4.6.2.4 Bats

Impacts from Alternative E would be as described for Alternative A.

4.6.2.5 Other Mammals

Impacts on bighorn sheep, the Mojave River vole and the yellow-eared pocket mouse would be as described for Alternative A.

4.6.2.6 Birds

Burrowing owls would be vulnerable to a potential for increased impacts from recreation in the expanded Open Areas, the Fremont Recreation Area, along the enduro corridor, and along the Barstow to Vegas racecourse alignment. The magnitude of these impacts is unknown. LeConte's thrashers would experience increased disturbance to occupied habitat in these same areas. Two golden eagle nest sites are known within the Johnson Valley expansion. These could be adversely affected by increased recreation.

Impacts on all other birds would be as described for Alternative A.

4.6.2.7 Reptiles

Impacts on unlisted reptiles would be as described for Alternative A.

4.6.2.8 Plants

Impacts would be as described for Alternative A for the all covered plants species except hose discussed below.

Barstow Woolly Sunflower: The proposed enduro corridor would pass through the center of the Barstow woolly sunflower conservation area. Location of the corridor here would increase the risk of damage to plants, in the event riders strayed from the route.

Desert Cymopterus: A known population of the desert cymopterus is located to the northeast of Cuddeback Lake. This overlaps the proposed Fremont Recreation Area. A much higher risk of damage to these plants would be present from inadvertent straying off designated routes.

Little San Bernardino Mountains Gilia: Without a proactive approach to protection of the limited desert wash habitat with the provision of a Special Review Area, gilia populations would be expected to decline over the long term, perhaps to the point where the plant would become listed as threatened or endangered.

4.6.3 Socio-Economics

4.6.3.1 Livestock Grazing

Impacts on cattle grazing would be as described for Alternative A, except that the Harper Lake Allotment would no longer be available for any future cattle grazing. The vast majority of the allotment would be within the single DWMA, leaving the remaining portion of the allotment non-viable due to the very limited acreage remaining and the lack of developed water. If the grazing lessee were to leave the livestock business as a result, there would be a permanent loss of 600 AUMs.

About two-thirds (2/3) of the Cronese Lake Allotment would no longer be available for any future cattle grazing. Current grazing use patterns indicate that most of the cattle grazing activity occurs on the third of the allotment lies outside the proposed DWMA. However, the flexibility to use the two-thirds of the allotment that is within the DWMA when forage and water conditions were favorable to grazing would be eliminated. This lack of flexibility may result in reductions in permitted use, or changes in the seasons of use in to maintain the current achievement of rangeland health standards.

Most impacts on sheep grazing would be as described for Alternative G (No Action). Health assessments, however, would be required within four years of plan adoption, as for Alternative A. This provision would delay BLM ability to determine if regional public land health standards are being achieved or not achieved. On public lands administered by the BLM's Barstow Field Office, all the existing sheep operations occur on allotments within OHV Open Areas. If a determination is made that a standard is not being achieved, the determination must also decide if ephemeral sheep grazing is the primary cause.

4.6.3.2 Mineral Development

Overall, the impacts on mining are similar to Alternative A. In this alternative the single DWMA

would contain 640,000 acres (1,000 square miles) compared with Alternative A with 1.4 million acres of DWMA. Some of those areas, however, such as the Shadow Mountains (northwest of Adelanto), are in the MGS Conservation Area so the compensation would still apply. Although the DWMA would not cover the Newberry and Rodman Mountains area, much of this area is wilderness, so mining is already impacted in those areas. Although the DWMA would not include the Rand Mountain-Fremont Valley area, mineral related surface disturbance would be prohibited in most of the area, similar to Alternative A because any proposed operation with valid existing rights in the withdrawal would be acquired, and the minerals would be unavailable. Even without the withdrawal, this area would be an MGS HCA requiring 5:1 compensation. Most of the Ord Mountain area would be outside of an HCA so 1:1 compensation would apply. This factor, coupled with fewer restrictions on access in selected areas, makes Alternative E slightly less costly, and advantageous to mineral development relative to Alternative A.

4.6.3.3 Regional Recreation Opportunities

Alternative E shares many of the same impacts on the motorized route network as Alternative A. Alternative E does have a number of unique management prescriptions that cause it to differ from Alternative A. Some of these management prescriptions will affect the designated open motorized route network and various recreational and commercial opportunities that are dependent upon motorized access.

Competitive "C" routes would be re-established in the Spangler Hills. This would expand opportunities for those forms of competitive motorcycle recreation afforded by these routes. A Fremont Recreation Area would also be established. The net impact on the designated open motorized route system would be negligible in that the same open route system designated in Alternative A would be utilized in this area. The net impact on recreational opportunity would probably be negligible in the short term, but more substantial in the long term in that the designation of the area as a Recreation Area would give some surety into the future that this area would be managed primarily for the recreational opportunities and resources. Recreational use of the area could increase, as this fact became more widely known due to the Recreation Area designation.

4.6.4 Cultural Resources

Expansion of the Spangler Hills Open Area would expose archaeological resources on these acres to uncontrolled vehicle use. The CDCA Plan inventory data indicated that site densities in this area average around 4.5 sites per square mile. A decision to open this area would require inventory of the expansion area and mitigation of impacts to affected cultural resources. It would result in loss of any significant resources in the area. Lack of inventory precludes more detailed description at this time. Similar impacts and requirements for inventory and mitigation would apply to the establishment of a Fremont Recreation Area near Cuddeback Lake. Establishment of a corridor for enduro events would impact cultural resources in the corridor but without a specifically identified route the nature and extent of such impacts cannot be predicted. Since this alternative would use the motorized vehicle access

network described in Alternative A those impacts would be the same.

4.6.5 Cumulative Impacts

Livestock Grazing: Similar to Alternative A. The Harper Lake (17,345 acres), and Cronese Lake (30,000 acres) allotments would have additional portions of the allotments that would have grazing discontinued and the remaining portions of the allotments would not be viable enough to have any grazing continue. This would increase the cumulative effects for this alternative by approximately 47, 345 acres of public land loss to future livestock grazing.

Biological Resources: Cumulative impacts of Alternative E to biological resources would most likely be significantly greater than Alternative A because no additional conservation measures would be applied in the Pinto Mountains or Ord Mountains areas. Expansion of the Open Areas would cause degradation of additional habitat. The incremental contribution of future projects within the areas not designated as DWMAs combined with the expanded Open Area designations could be significant.

Alternative E would substantially increase the area of incidental take for the desert tortoise. This increase outweighs the additional protections provided within the single DWMA, and is a significant adverse impact.

Minerals: Cumulative impacts to mineral resources would be similar to Alternative A.

4.7 ALTERNATIVE F: NO DWMA – AGGRESSIVE DISEASE AND RAVEN MANAGEMENT

Impacts would be as described for Alternative A, except as discussed below.

4.7.1 Air Quality

Most of the activities associated with Alternative F would not result in any impacts to air quality. Impacts from Livestock grazing and OHV routes would be similar to Alternative A. Impacts from the restoration of existing ground disturbance would be similar to Alternative A, but smaller due to less land area involved.

4.7.2 Biological Resources

4.7.2.1 Natural Communities

Without designation of DWMAs, landscape-level protection of natural communities is problematical, at least in the areas outside the MGS and species-specific conservation areas. In the Newberry-Rodman Mountains, Pinto Mountains and the Coyote Basin south of Fort Irwin, the focus on

disease and predator protection for the desert tortoise would not provide and benefit to natural communities. Natural communities in these areas, which are dominated by creosote bush scrub and saltbush scrub, would be subject to fragmentation by dispersed developments on private lands. Other communities that would be impacted to a greater extent than Alternative A include desert washes, playas and some mountainous areas containing Mojave mixed woody scrub.

4.7.2.2 Desert Tortoise

Alternative F's conservation strategy differs from other alternatives, in that it proposes a tortoise conservation strategy that relies on an aggressive program of tortoise disease management and raven control supported by an extensive fencing program, rather than the establishment of DWMAs to protect tortoise habitat. Thus the highest funding priority would be given to controlling disease and ravens, and no DWMAs would be designated (see Map 2-21). Weakness and strengths associated with this alternative are given in Table 4-61.

Table 4-61
Tortoise Impacts of Alternative F

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
DWMAs Not Established	DWMAs Not Established (AF-1) • Failure to establish a tortoise conservation area to protect tortoise habitat is a very serious flaw. Degraded habitats are very likely associated with disease, and increased raven populations are definitely associated with degraded habitats, yet this alternative would focus on animals, not habitat. Establishing the 1,863 mi^2 MGS CA in the north and northwestern portion of the planning area would do very little to accomplish this goal. Although the MGS CA covers portions of the excluded DWMAs in the south and central part of the planning area, proactive tortoise prescriptions would not apply. (AF-1) • The benefits associated with DWMA establishment given in Alternatives A, B, C, and D would not be realized. Impacts identified in those alternatives would be elevated.
Recent and Current Tortoise Occurrence •	Recent and Current Tortoise Occurrence • Since DWMAs would not be established, the following areas would not benefit from proactive management of habitats and tortoises **Does not establish conservation areas for:** • 11,134 mi^2 within the 2002 range • 563 mi^2 of higher density areas • 424 tortoises observed during recent surveys • 2,317 mi^2 of USFWS critical habitat • 1,398 mi^2 of BLM Category I habitat and 548 mi^2 of Category II habitat

BENEFITS	RESIDUAL IMPACTS
Management in BLM Categories and Critical Habitat	Management in BLM Categories and Critical Habitat • Since there would be no DWMAs, the context for implementing conservation measures in DWMAs versus ITAs would no longer apply; take would be authorized for all areas equally, but predictably affect more private lands than public lands
Land Management in Adjacent Areas	Land Management in Adjacent Areas • Failure to establish DWMAs would raise the chance of impacts to adjacent conservation areas, including • Critical habitat at Edwards AFB • Tortoise management area at China Lake NAWS • JTNP management adjacent to the excluded Pinto Mountain DWMA
EXISTING MANAGEMENT IN LIEU OF ESTABLISHING DWMAS AS ACECS	
Critical Habitat Protection in Lieu of DWMAs • BMPs, tortoise surveys, fee compensation, etc. would be somewhat more protective in critical habitat, but all fall short of higher level protections identified in Alternative A, since the focus here would be ravens and disease, not minimizing impacts to habitat • There would no longer be an issue of management conflicts associated with critical habitats inside and outside DWMAs, since conservation areas would not be designated	Critical Habitat Protection in Lieu of DWMAs • Critical habitat designation only allows the USFWS to determine adverse modification of critical habitat on public lands. It does not provide, by itself, a pragmatic and proactive management program. In fact, an "adverse modification" finding has never been made in the West Mojave since the 1994 designation.
BLM ACEC Management	BLM ACEC Management • The advantages of ACEC management identified in Alternatives A and B would be lost
BLM Management of Category I, II, & III Habitat • Management goals for Category I and II habitats would remain in place, and in general, provide management direction that provides some minimal benefit for tortoise conservation (see right)	BLM Management of Category I, II, & III Habitat • Tortoise management under BLM's habitat category guidelines has meaningful goals, but specific ACEC management prescriptions would be necessary to realize those goals. Since ACEC's would not be established, future management would continue to only identify goals without specific management actions to realize those goals. Management relative to habitat categories would have little meaningful application to tortoise conservation, and result in perpetuating existing problems.

BENEFITS	RESIDUAL IMPACTS
Sign Count Surveys and Designation of "Survey" and "No Survey Areas" • Sign count data collected between 1998 and 2001 allowed the detection and delineation of older and newer die-off regions throughout the planning area. These observations were based on detecting tortoises that had died more than and fewer than four years of being found. This is a very useful tool that would be expanded upon under this alternative. As such, sign count surveys would be performed on an annual basis in all areas currently identified as regions of higher tortoise densities. Such surveys would be performed in all such areas, including Category I and II habitats, critical habitat, and BLM open areas. In time, these surveys may also be required in lower density and extirpation areas if there is reason to believe that those areas are becoming repopulated. The intent would be to detect new die-offs in regions currently supporting higher tortoise densities. The frequency of the surveys on an annual basis would be required to allow for immediate containment of the disease spread. Emergency fencing, discussed below, would be strategically placed along existing roads to contain the disease	Sign Count Surveys and Designation of "Survey" and "No Survey Areas" (AF-16) • The requirement to complete presence-absence surveys in all areas and clearance surveys where tortoise sign occur, does not lend significantly to disease or raven management. Again, these surveys are intended to offset the impacts of new construction, and would not appreciably add to either raven or disease management (AF-16) • Under this alternative, there would be no designation of tortoise "No Survey Areas." Whereas this would avoid the possibility of impacting tortoises where they are not expected to occur (a beneficial or neutral impact, at best), the alternative would result in continuing current management, and would result in substantial costs to project proponents who would continue to pay for surveys in areas where tortoises are not likely to be directly affected • Annual sign count surveys associated with this alternative may be costly, although they would be substantially less expensive than distance sampling.
Distance Sampling • Data used to identify older and recent die-offs strongly suggest that distance sampling as applied in 2001 and 2002 would fail to detect newer die-off regions. Alternative F proposes a substantially more meaningful and less expensive way to identify die-offs than what is proposed under Alternative A. Distance sampling should be conducted in higher density areas where a sufficient number of tortoises could be detected to satisfy the minimum sample size of 80 tortoise/stratum required by the statistical analysis associated with the method. This would result in relatively accurate estimates of densities, but may still fail to detect die-offs in a meaningful manner. Alternative F's proposal for a combination of distance sampling (for density estimates) and sign count surveys (to detect die-offs) is an effective use of both techniques.	Distance Sampling Failure to apply distance sampling in all regions, including extirpation areas, may preclude some ability to detect natural increases in those tortoise populations, although the chances of such increases are doubtful without proactive management programs and intervention like head starting.
Emergency Fencing in Response to Disease (AF-15) • Proactive disease management would require a new kind of fence, not envisioned by Alternative A. Using data from annual sign count surveys, managers would need to see where disease continues to spread into previously unaffected subpopulations. Depending on the new distribution of the die-off, it may be possible to remove previously installed fences and use that material in the newly identified area, which would minimize the cost of fencing materials	Emergency Fencing in Response to Disease • Although these fences are likely the only means to stop spread of disease, there is no guarantee they will function as in tended. For example, placing a fence along the diagonal road southeast of the recent Kramer Hills die-off may not enclose diseased animals that are already south of that road. • This management scenario would be costly and would demand a high commitment of staff time.

BENEFITS	RESIDUAL IMPACTS
Plan Implementation • Has the same advantages of Alternative A, since a Section 10(a) permit would be issued to participating counties and cities (i.e., unlike Alternative B)	Plan Implementation
Federal Permitting • Same advantages as Alternative A	Federal Permitting • Same disadvantages as Alternative A, with one major difference: the USFWS' minimize and mitigate to the maximum extent practicable standard would not be met. . Both raven and disease management target *animals*, when in fact, both ravens and disease are likely associated with degraded *habitats*. Also, the alternative fails to address vehicle impacts, poaching, gunshot mortalities, vandalism, release of ill pets, and many others.
State Permitting • Same advantages as Alternative A	State Permitting • Adverse impacts same as those given above for federal permitting
Compensation & Fee Structure • Compensation would be commensurate with the severity, type, and location of authorized impacts, which would provide for take and habitat loss that would not exceed the level of conservation provided for in return (AF-4) • Maintaining the 5:1 compensation ratio within the MGS HCA and tortoise critical habitat would have similar benefits as given for Alternative A • Would still result in consistent, unified mitigation structure that would avoid current inconsistent approaches among and within permitting authorities	Compensation & Fee Structure • Fees for construction of single-family residences in DWMAs would no longer apply under this alternative
MAINTAINING CURRENT MULTIPLE USE CLASSES	
Maintaining Multiple Use Classes • Class L lands would continue to be managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished	Maintaining Multiple Use Classes (AF-3) • For reasons given above, changing BLM's multiple use Class M lands to Class L in the northern portion of the MGS Conservation Area would have little benefit to desert tortoise conservation where it is most needed (i.e., in higher concentration areas and in recent die-off areas) • Multiple use classes would remain unchanged, so the types of development that would be allowed in Class M and unclassified areas (e.g., new nuclear power plants, new agriculture), depending on their location and prevalence, could constitute a significant impact; see Alternative A for additional impacts • Inconsistent with BLM's NECO and NEMO plans for CDCA public lands, where Class M and unclassified public lands throughout DWMAs were re-designated as Class L to provide relatively more protection

BENEFITS	RESIDUAL IMPACTS
No ACEC Prescriptions to Supercede Class M	No ACEC Prescriptions to Supercede Class M • Would allow for the following types of development and uses on Class M and unclassified public lands in DWMAs: new agriculture, including biosolids fields; development of nuclear and fossil fuel power plants; discretionary approval of routes by BLM Field Manager without level of review called for in Class L; recreational events on "existing" routes of travel as opposed to "approved" routes of travel; and pitting, starting, finishing, and spectator areas would be allowed
1% ALLOWABLE GROUND DISTURBANCE	
Function to Minimize Impacts • Under this alternative, there would be no 1% AGD; impacts are given to the right	Function to Minimize Impacts • Same impacts identified for Alternative A would apply, but following impacts would also occur: (AF-5) • Failure to apply the 1% AGD either within or outside the HCA would result in unrestricted development throughout all tortoise habitats. Although most of these areas are not likely to be developed in the next 30 years, there would be no constraints associated with authorized development • As more and more of the non-conservation area is developed, both disease and raven management would be seriously undermined. Increased urbanization provides resources that will predictably result in more food and water resources for ravens. In the absence of the 1% AGD, this type of development would be unrestrained and likely support raven populations in areas where they are supposed to be managed • Implications are similar for disease management. Disease very likely is associated with degraded habitats, release of captive ill animals, etc. As urbanization and other unauthorized development proceeds in an unrestricted manner, the interface between new sources of disease and the disease management area (if there is one) would increase and seriously undermine any advantages realized through these management programs • On both local and regional scales, would allow authorized development to extirpate both lower and denser tortoise populations, sever critical linkages, etc.

BENEFITS	RESIDUAL IMPACTS
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
Acquisition Priorities (AF-8) • One advantage of this alternative is that more money would be available for land acquisition because many of the programs identified in Alternative A would not need to be funded. However, acquiring lands in the absence of a definite conservation area would undermine any advantages gained, as newly acquired lands would be open to unrestricted development (i.e., see discussion under 1% AGD and elsewhere).	Acquisition Priorities (AF-8) • Land acquisition, alone, would fail to promote either disease or raven management. In fact, maintaining land acquisition as a high priority would divert funds from disease and raven management programs that were not acquisition- dependant (AF-8) • The BLM would not be obligated to retain all public lands within DWMAs for purposes of tortoise management, since tortoise conservation areas would not be established
BLM Management	BLM Management • Alternative F would fail to facilitate signing, fencing, canine predator management, etc. programs
Motorized Vehicle Access	Motorized Vehicle Access • Alternative would fail to facilitate route designation and implementation of route closures on existing public lands. Nor would it ensure that route designation on newly acquired lands would occur in a timely manner and ultimately benefit the conservation program
NEW AGRICULTURAL DEVELOPMENT	
	• Unchanged current management would allow agricultural development on BLM Class M and unclassified public lands, including many higher density areas
COMMERCIAL FILMING ACTIVITIES	
	• Alternative would fail to result in programmatic implementation of protective measures on private lands, which are identified in Alternative A • Maps and brochures would not be produced to direct filming impacts away from higher density areas

BENEFITS	RESIDUAL IMPACTS
CONSTRUCTION ACTIVITIES	
	• New construction of landing strips and airports, and new nuclear and fossil fuel power plants, would be allowed on BLM-designated Class M and unclassified lands, but would not be allowed on Class L lands. Given the coincidental occurrence of Class M and unclassified lands with much of the habitat supporting the highest tortoise densities, this type of new construction would be allowed in such areas • Significant beneficial impacts associated with 1% AGD, clearance surveys throughout excluded DWMA lands, etc. would not longer occur, and cumulatively result in adverse significant impacts • Ravens often visit places where new ground disturbance is occurring, where they have been observed eating lizards, snakes, and small mammals that are injured or killed by blading and other construction activities. Wherever new construction results in removal of ground cover, one can predictably expect to encounter ravens that would otherwise not be there. This sort of focal behavior will always hamper the efficacy of raven management. That the 1% AGD would no longer apply means that ravens would occur in association with new construction areas, including those where higher density tortoise areas would be exposed to increased potential for tortoise predation
Best Management Practices (AF-14) • The intent to implement streamlined Level 1 BMPs in Category I and Category II tortoise habitat and Level 2 BMPs elsewhere would benefit tortoises, in general, but would not appreciably affect disease and raven management. BMPs are intended to minimize direct impacts associated with construction, which is outside the focus of raven and disease management	Best Management Practices (AF-2) • Restricting Biological Transition to the MGS Conservation Area would benefit those areas, but have little benefit to tortoise conservation, as most tortoises do not occur in the areas where BTAs would be established (AF-14) • The efficacy of implementing BMPs would be undermined because the 1% AGD would not be required and construction would be authorized in all areas
Single-family Residences	Single-family Residences • Allows for construction of single-family residences in all areas without clearance surveys, or mandatory reporting of the number of tortoises affected, which is a continuation of current management, but not likely a significant impact, as most homes would be constructed in 1/2:1 compensation areas
Special Review Areas	Special Review Areas (AF-2) • Not establishing Special Review Areas would result in marginal adverse impacts, as the SRAs identified in Alternative A already fail to protect higher density areas outside the Brisbane Valley and Copper Mountain Mesa area.
DISEASE MANAGEMENT	

BENEFITS	RESIDUAL IMPACTS
• This is the main place where Alternative F would be far superior to Alternative A. Annual sign count surveys, emergency procedures to erect fences to thwart spread of disease, closing culverts under highways and freeways, etc. are far more proactive than the program identified in Alternative A • Prescriptions given below relative to raven management would require implementing an extensive road-fencing project on all freeways, highways, and secondary roads in the vicinity of tortoise habitat. Fences would also prevent the spread of URTD and other diseases, which would facilitate the prescription to close existing and newly constructed culverts	• The impacts discussed above with regards to surveys, fencing, and culvert closure would also apply here
DROUGHT	
<u>Motorized Vehicle Access</u>	<u>Motorized Vehicle Access</u> • Minimizing vehicle use in washes, the single most effective measure to alleviate human impacts during time of drought, would not be implemented under this alternative, and likely result in significant impacts • Alternative F fails to identify specific measures that would be implemented in higher density tortoise areas, which are most likely to benefit from additional protection during periods of drought; temporary, emergency closures of additional routes in higher density tortoise areas would have resulted in less stress than would occur with Alternative A, and may be particularly important with regards to disease
EDUCATION PROGRAM	
• The education program would be directed towards enhancing public awareness about ravens and disease • For ravens, the program would necessarily be directed towards utility companies, landfill operators, sheep and cattle ranchers, and recreationists. This latter group would be particularly important, as ravens are known to frequent high use areas where increased levels of litter and other refuse have been observed. • For disease, the program would need to target pet owners to inform them that no tortoises are to be released into the wild.	• This program would be difficult to implement, as many visitors to the desert are spread throughout southern California, and it would be difficult to target the "right" audience • The education program would fail to curb the prevalence of poaching, pet collection, vandalism, gunshot incidence, etc., as these impacts are not directly related to either disease or raven management • The education program would not be directed to construction workers, which would have been intended to minimize construction impacts, not impacts associated with ravens or disease
ENERGY AND MINERAL DEVELOPMENT	

BENEFITS	RESIDUAL IMPACTS
New Development (AF-9) • The prescriptions to allow for mineral extraction from all areas; requiring BLM Plans of Operation in Class L; continuing to regulate mines less than 10 acres under the existing biological opinion; and continuing implementing SMARA regulations are the same as for Alternative A.	New and Existing Development • Reclaiming areas rather than restoring them would fail to re-establish tortoise habitat, which may lead to undermining the efficacy of both disease and raven management. Reclamation would result in re-contouring surface disturbances and other minor remedies; restoration would include reclamation activities, but go a step further by providing habitats that may be available for re-occupation by tortoises. • Development of new mines and expansion of existing mines would no longer be subject to the 1% AGD, however since most mining would be on BLM lands, this impact would not likely be significant. • Does not adequately address how existing and new contamination associated with mining activities would be remedied and avoided, respectively • Fails to indicate how impacts associated with new haul roads would be minimized or avoided
New Exploration	New Exploration • Would fail to include new standards to minimize temporary impacts. Since there is no 1% AGD, these impacts would not likely be minimized or mitigated.
FERAL DOG MANAGEMENT	
Feral Dog Management • Benefits associated with feral dog management would be particularly important during periods of drought, when feral dogs may be more likely to prey of tortoises as other prey items become less available	Feral Dog Management • There would be no feral dog management plan, which was to be the means to determine where this impact is most prevalent. At this time, in the absence of other data, feral dogs are known to be a problem on the western and southern portions of the 29 Palms Marine Corps Base and at he DTNA; the problem is likely to be more widespread. Though not supported by data, feral dogs are likely to be a problem in the southern part of the Fremont-Kramer, west of Silver Lakes; it is likely that they also affect higher concentration areas around Barstow and north of Hinkley. • Feral dogs would continue to injure adult tortoises and likely kill smaller animals, due to Alternative F's focus on raven and disease management. • Given that there would be no 1% AGD, all private lands would be available for development. As urbanization approaches the heart of higher concentration areas (not likely in the next 30 years, except for the places given above), feral dogs would increase as a problem and eventually comprise a significant adverse impact
FIRE MANAGEMENT	
• Same as Alternative A	• Same as Alternative A
CATTLE GRAZING ON BLM ALLOTMENTS	

BENEFITS	RESIDUAL IMPACTS
	• The grazing of cattle provides water (i.e., troughs, standing water from leaking pipes, etc.) and food (i.e., cattle carcasses) for ravens that would continue to be available under current management. No new prescriptions would be identified under this alternative, so these resources would remain available to ravens • It is not clear how cattle grazing relates to disease transmission, although available data suggest that there have been no older or newer die-offs in cattle allotments, per se. If disease is associated with poor nutrition and other variables associated with degraded habitats, it may be that disease management would be hampered by maintaining cattle grazing under current practices
• Cattle grazing would not be removed from Exclusion Areas, thus avoiding impacts associated with concentration of livestock grazing in non-exclusion areas.	
	• Fences to minimize trespass would not be installed, and cattle trespass outside the Ord Mountain Allotment would continue unabated
	• Ephemeral allocations would be allowed and, when permitted, would allow for increased competition between cattle and tortoises
	• Temporary Non-renewable grazing allocations would be allowed and, when permitted, would allow for increased competition between cattle and tortoises
	• Since ephemeral grazing would not be removed, the Pilot Knob Allotment would remain available for cattle grazing. Such grazing would not occur so long as the DTPC continues to be the lessee, but cattle ranchers would have the opportunity every two years to solicit a lease on this ephemeral-only allotment
	• Cattle troughs would continue to provide an otherwise unavailable water source to common ravens, which may undermine the efficacy of the raven management program • Removal of cattle carcasses would be at the discretion of the lessee. If carcasses are not removed in a timely manner, the efficacy of the raven management plan may be somewhat undermined
• If and when health assessments are completed, it would be necessary to assess allotments for their contribution to subsidizing raven populations. There is too little information at this time to assess allotments for their potential to contribute (or not) to disease management, as the relationship between cattle grazing and spread of disease remains unknown	• There would be no requirement to complete health assessments in a timely manner.
SHEEP GRAZING ON BLM ALLOTMENTS	

BENEFITS	RESIDUAL IMPACTS
	• Sheep grazing would continue on the 14 mi^2 of the Shadow Mountain Allotment and adversely affect tortoises, including higher concentration areas on those lands
	• Grazing allotments would remain as designated in the CDCA Plan. Although they are currently not grazed due to the 1991 biological opinion, there are annual requests of the BLM to graze these allotments. If grazing were permitted in the future, it would lead to a very significant adverse impact
GUZZLERS	
• An immediate guzzler study would identify guzzlers that subsidize ravens in places where the overall raven management plan would be undermined	
HABITAT CREDIT COMPONENT	
Success Criteria (AF-6) • Continuation of restoration and reclamation programs would benefit tortoise conservation, as they would focus on reclaiming habitats on which tortoises rely. Discontinuing the habitat credit program would avoid the potential impacts identified for this program in Alternative A.	Success Criteria
HEAD STARTING PROGRAM	
	(AF-17) • There would be no head-starting program. As such, there would be no attempt to repopulate areas that were recently populated and likely now extirpated due to disease. This is a weakness of Alternative F's disease management strategy, as all available evidence suggests that disease was responsible for both older and new regional die-offs, and a head-starting program would have complemented the other proactive disease management measures. In the absence of establishing a conservation land base (i.e., DWMAs), disease management must address the foreseeable reality that disease will spread in spite of any proactive programs to protect existing populations that may already be exposed to URTD. Tortoise populations that exist as of 2003 may already be diseased, and the patterns of die-off suggest that the entire tortoise population is susceptible to extirpation in the next 5 to 10 years. Disease management would fail if it is intended to protect only those animals that remain; it must also provide a means for replacing populations lost to disease. The only means of doing this is through head starting. The best places to do this are in areas where significant tortoise populations once occurred. As such, all areas between the DTNA and Cuddeback Lake are prime targets for head starting

BENEFITS	RESIDUAL IMPACTS
	In any event, Alternative F lacks many of the ancillary programs that would be needed to ensure the success of a headstarting program. Dr. Nat Frazer has argued convincingly that head starting will fail if the threats that eliminated the species in the first place are not removed from the landscape. For tortoises, this would mean fencing all head starting areas to preclude impacts from those nursery colonies and surrounding areas that are intended to be repopulated. For the West Mojave, this means eliminating vehicle travel and sheep grazing, among others, from these head starting regions. • For example, rather than reducing routes, all routes within the nursery area would no longer be available for vehicle travel. If annual sign count surveys show that a new die-off region is within a BLM cattle or sheep allotment, grazing pressures must be immediately removed from those areas. If new disease outbreaks occur in BLM open areas, fences would need to be installed in those areas, which would result in increased potential for vehicle collision with the fences. In open areas, it may be necessary to erect chain-link fences to provide for more visibility than the shorter tortoise fences in order to avoid this foreseeable danger to recreationists
LAW ENFORCEMENT	
Focused Enforcement in DWMAs (AF-12) • Continuing law enforcement and BLM ranger patrols at current levels, and not hiring new staff, would not seriously undermine the efficacy of this alternative. However, it would require a new focus by rangers and patrol officers to be sure that they are in the appropriate places. For example, ranger patrols should be focused in higher concentration areas to minimize dumping, illegal camping, and other human uses that provide resources opportunistically be used by ravens. Increased and focused law enforcement may also minimize the number of sick captive tortoises being released in these areas, in support of heightened disease management	Focused Enforcement in DWMAs (AF-12) • Though a good faith effort is implied, Alternative F fails to indicate how BLM could obligate its law enforcement staff, without new personnel, to ensure this measure would be implemented; failure to identify a mechanism could result in discretionary, inconsistent implementation
Facilitated Coordination	Facilitated Coordination • There is no indication under this alternative that there would be increased co-operation between BLM law enforcement and other entities, which would undermine the efficacy of the raven and disease management programs
MOTORIZED VEHICLE ACCESS NETWORK	

BENEFITS	RESIDUAL IMPACTS
Overall Importance	Overall Importance • Designating and implementing a motorized vehicle access network that is supported by land use laws and compatible with tortoise recovery is *the single most important management action* that could be implemented to minimize the widest variety of known human impacts (see Alternative A). Under Alternative F, funding and staff would be applied to raven and disease management, which would result in a lower funding and staffing priority for the implementation of the route network and other measures. As such, failure to protect habitats would constitute a significant adverse impact
For Animals and Habitat	For Animals and Habitat • Tortoises would continue to be susceptible to: pet collection; animals, burrows, and eggs crushed; gunshot impacts; handling that results in bladder voiding; harassment or mortality by pet dogs; poaching for ceremonial purposes; releasing pet tortoises into wild populations, which may spread disease; translocation, where tortoises are moved outside their home range into other habitats; and vandalism. • Habitats would continue to be susceptible to soil compaction, displacement through wind and water erosion, petroleum contamination; spread of exotic weeds, which supports spread and intensity of fire; damage and complete removal of shrubs, which reduces protective cover and burrowing opportunities; dumping (which leads to more dumping), resulting in soil contamination, food sources for ravens, focal areas for illegal target shooting; increased litter and garbage used as a food source by ravens; and increased noise levels (though effects are not well known).
Route Reductions in Specified Regions • Even though DWMAs would not be established under this alternative, the motorized vehicle network analyzed for other alternatives (excepting Alternative G) would have the same beneficial impacts.	Route Reductions in Specified Regions • Same as Alternative A and others (excepting Alternative G)
PLANT HARVEST	

BENEFITS	RESIDUAL IMPACTS
• Would result in no change over current management with regards to plant harvest, which at this time is already minimal	
RAVEN MANAGEMENT	
<u>Coordination and Participation</u> • Focusing limited funding on raven management would have the positive effect of facilitating implementation of prescriptions in light of limited budgets and staff • Given the higher importance of raven management, the USFWS' role in proactively managing ravens would be considerably more effective and receive broad public support, which would significantly increase the efficacy of this proposal compared to other alternatives • Participation by SCE and LADWP would be required. Their participation would ensure that protective measures are implemented for extensive reaches of existing utilities, that raven salvage permits would be acquired and used, and results would be reported to the USFWS	<u>Coordination and Participation</u>
<u>Highway fencing</u> • Fencing all major highways and secondary roads would be a very high priority that would result in a significant decrease in the amount of food available to ravens. Dr. Boarman has estimated that there is an 88% reduction in the number of vertebrate animals killed along fenced compared to unfenced roads • Fencing would also have the compartmentalizing effect of minimizing the likelihood of disease spread. Although populations on a given side of the fence would still be vulnerable, it would predictably minimize the spread of the pathogen to tortoises on the other side of the fence. This effect would be somewhat alleviated by implementing the expanded head starting program given above to repopulate such areas. Since the fences would be maintained as impassable barriers, this would have the dual effect`t of enhancing the efficacy of the head starting program as well	<u>Action Items</u> • Proactive raven management would require fencing of 740 linear miles of roads (i.e., this includes 370 linear miles of roads with fences on both sides). Given the projected cost of about $7.50/linear foot to construct such fences[15], it would cost $29,304,000. Roads are listed below: Red-Rock-Garlock (21 linear miles) Randsburg-Red Rock (9) Neuralia (13) Interstate 15 (41) W Cal City Blvd (8) Interstate 40 (30) E Cal City Blvd (8) Highway 395 (56) Irwin Road (9) Highway 247 (16) Fort Irwin Road (23) Highway 62 (11) (Miles in parenthesis are linear Highway 58 (51) lengths of roads to be fenced) Shadow Mountain (12) Mojave-Randsburg (23) Helendale (10) 20 Mule Team (19)

15 Paul Gonzales, CalTrans District 8 (pers. comm. 2003) indicated that highway fencing has cost between $5.00 and $10.00 per linear foot, so the average of $7.50 is used in the text.

BENEFITS	RESIDUAL IMPACTS
Landfills	Landfills • Proposal does nothing to minimize impacts associated with the Barstow Regional Landfill, which occurs within a few miles north, east, and west of higher density areas. This location would result in significant adverse impacts on the efficacy of the raven management plan to minimize raven impacts • Given that the 1% AGD concept and establishing DWMAs would no longer be considered, construction and new development would be allowed on all private lands within the planning area. This would also mean that the restriction of no new landfills within five miles of DWMAs would be abandoned. As such, new landfills could be constructed on all private lands and public lands in Class M and on unclassified public lands. This would result in serious adverse impacts to the raven-management only nature of this alternative
Raven Eradication • Although salvage permits to remove raven nests is expressly given as part of this alternative, it does not indicate intent to eradicate adult ravens. Presumably, there would also be the need to remove ravens.	Raven Eradication • If eradication would be required, as suggested by sole management of ravens, it is very likely to meet with public disapproval. Raven eradication was met with strong opposition when such a program was proposed in the late 1980's. The compromise was to eradicate only those ravens where there was positive evidence of tortoise predation. Given that this strategy focuses solely on raven management, it may be necessary to remove all ravens that are in the vicinity of higher tortoise concentrations and not just those where raven predation is documented
RECREATION ACTIVITIES	
Competitive Events (AF-7) • Allowing motorized vehicle speed events on a case-by-case basis, and requiring environmental assessments would be a beneficial impact if, in particular, these uses are directed away from tortoise concentration areas	Competitive Events (AF-7) • Intense, concentrated recreation is known to be associated with aggregations of people and be associated with increased camping, litter, and a raven "curiosity factor." Ravens are known to fly in from long distances and circle above even a few people, presumably looking for potential foraging opportunities. This behavior would be expected in association with all activities, including competitive events, where people congregate. The impact would be concomitant with the number of tortoises in the area, so competitive events in the vicinity of higher concentration areas would likely result in relatively more serious impacts

BENEFITS	RESIDUAL IMPACTS
Competitive Event Corridors • Mandatory implementation of "yellow flag" conditions paid for by the proponent for events using the Stoddard-to-Johnson Valley and Johnson Valley-to-Parker corridors would eliminate the competitive "race" nature of the event (i.e., it would be more like a dual sport)	Competitive Event Corridors • New, frequent use of the Stoddard-to-Johnson Valley and Johnson Valley-to-Parker corridors for competitive events would result in impacts to higher concentration areas (as described above) with increasing familiarity, popularity and casual use of the corridor • The Stoddard to Johnson Valley Corridor has higher density areas associated with the northern and southern portions of the corridor. The Johnson to Parker Corridor skirts such an area.
Dual Sports • Maintaining dual sports as regulated would continue to increase participant awareness of tortoise conservation measures (i.e., non-competitive, restricted to existing route width, 35 mph speed limit, seasonal restrictions, etc.), has resulted in no known loss of tortoises, and would provide for compatible vehicular use, so long as currently regulated • BLM would revise its educational materials provided to dual sports participants to indicate that both adult, and particularly hatchling, tortoises may be active at Thanksgiving, and that riders should watch for and avoid such animals, which would make riders aware that tortoises could be out and should be avoided • This alternative would also require the BLM to increase its educational outreach with regards to raven impacts to minimize the amount of litter, refuse, pet food, water, etc. available to ravens as a result of an otherwise low impact activity	Dual Sports • The same effects identified above would also be associated with dual sports and enduros. Although these events generally would not result in habitat damage or crushing tortoises, they do result in increased concentrations of event participants and associated crowds at staging, starting, finishing, and camping areas. Each of these areas is likely to result in increased raven numbers. The severity of the impact would be governed by the location of these crowds relative to higher and lower concentrations of tortoises

BENEFITS	RESIDUAL IMPACTS
Other Conservation Measures (AF-15) • The fencing program of Alternative A would need to be greatly expanded under Alternative F, although there would be no need to fence DWMAs. Fences along Highway 247 and Camp Rock Road would effectively minimize vehicle impacts (i.e., increased litter, increased potential for crushing by cross country travel, etc.), all of which are likely to promote increased raven use in the area • Installation of a *new fence* between the Johnson Valley Open Area and the Ord-Rodman DWMA would minimize recreation impacts that are not otherwise regulated by this alternative (i.e., no changes in management of open areas) (AF-7) • Restricting vehicle camping, stopping and parking on public lands to within 100 feet of designated open routes on Class L lands, and within 300 feet elsewhere, would have the same advantages given in Alternative A and described elsewhere in this alternative • Each of these measures provides for increased law enforcement capabilities, which would otherwise remain at current levels • The *education program* would be especially tailored to minimize attracting ravens and releasing captive, ill animals, both of which would be positive effects relative to disease and raven management	Other Conservation Measures (AF-10) • The prescription to allow dogs off leash under the control of their owners in Category I and II tortoise habitat is inconsistent with the goals of Alternative F, as it would fail to support either raven or disease management. Predation by feral and domestic dogs is a separate impact from raven and disease impacts, and is not consistent with the alternative's intended function (AF-15) • The alternative envisions no need to install signs, as no DWMAs would be established. It would have been more efficacious had signing been used in conjunction with both raven and disease management. For example, strategically placed signs in conjunction with higher density areas may have prevented dumping and litter in an attempt to minimize the attractiveness of these areas to ravens. The alternative also misses the opportunity to install signs that would inform the public that release of captive animals could result in the spread of disease.
Gunshot Impacts • Increased law enforcement may result in less violation of current statutes regulating hunting and target shooting practices, but only if law enforcement can be focused in higher density areas	Gunshot Impacts • This alternative is seriously flawed with regards to minimizing gunshot impacts, as neither raven nor disease management would serve to curtail this continuing impact.
TRANSPORTATION	
Highway Fencing (AF-11) • Under this alternative, Caltrans involvement must be much higher than given in Alternative A. Extensive fencing for raven management would reduce the amount of food available to them. Immediate closure of culverts, as an emergency procedure, would help curb the spread of disease, although this measure may already be too late.	Highway Fencing • If there is less carrion available for ravens as a result of fencing roads, there is the potential that, rather than leave the area, ravens may switch to other available forage, including tortoises and other wildlife • If fencing does not occur until road construction (i.e., 2013 to 2015 for Highway 395 widening between Adelanto and Red Mountain), tortoises would in the interim continue to be crushed, and raven forage would be available, which would undermine the efficacy of raven management

BENEFITS	RESIDUAL IMPACTS
Culverts (AF-11) • This alternative envisions a higher level of commitment by Caltrans in terms of closing existing culverts and blocking new culverts to prevent the spread of disease. It appears that open culverts along Highway 58 and Interstate 40 have allowed diseased animals to move from the north to south. Under this alternative, culverts would be closed immediately to reduce the amount of disease spreading to apparently unaffected tortoise populations south of these two roads. As new roads are widened and new culverts built, Caltrans would ensure that they are impassable to tortoises but remain open to allow for water flows, for which they are engineered	Culverts
	• Alternative fails to regulate new road construction by county road departments, which could result in increased raven scavenging in areas where that may not currently be a problem • Dr. Boarman has shown that roads differentially affect subadult tortoises more than adults. Although available information suggests that subadults comprise about 20% of the total population, subadult tortoises crushed along roads comprised about 60% of the carcasses found. His studies also suggest that older subadult tortoises are the age class most likely to make long distance movements; they would be teenagers, if human. These observations suggest that raven and disease management would fail to prevent the loss of this younger age class, which would likely continue to be differentially crushed along roadways until they are fenced
UTILITIES	
Utility Participation (AF-13) • Precluding the construction of new aboveground transmission lines in contingency corridors would provide heightened raven management (AF-13) • Maintenance measures would continue to follow existing procedures, and not seriously undermine either disease or raven management.	
• Program would ensure that maintenance workers of signatory utilities are aware of tortoises and avoid them, and adhere to seasonal restrictions and alternatives identified.	• None, as neither take nor new loss of habitat would be authorized
	• Alternative F would not require revegetation of new rights-of-way in tortoise habitat, which would undermine a practice that is currently required for all new linear developments. Failure to revegetate these alignments would likely mean that corridors disturbed by new pipeline construction would not become naturally revegetated for many years, if at all
WEED CONTROL	

BENEFITS	RESIDUAL IMPACTS
	• Alternative fails to, nor is there any clear means how to, eradicate non-native species that have already become well established, nor would it facilitate better communication with weed management agencies. If, as suspected, poor nutrition is associated with outbreak and spread of disease, failure to implement these programs may seriously undermine disease management

The purpose of this alternative is to determine the feasibility of managing disease and ravens in lieu of establishing conservation areas. It is therefore extremely important to be sure that focused management on disease and ravens would serve to conserve and recover tortoises without establishing conservation areas, which would necessarily result in reducing other legitimate uses of the desert.

The alternative is founded on the assumption that disease and ravens are the primary threats affecting tortoises in the planning area, and that establishing conservation areas would be uncalled for. This assumption is probably more accurate for disease than for ravens; and disease appears to be more of a threat to tortoise conservation than are ravens. To address each of these issues fully, the following discussion focuses on raven management, followed by disease management. Following those discussions, the final summary discusses the strengths and weakness of implementing these programs instead of establishing conservation areas.

Raven Management: There is undeniable evidence in the literature that ravens prey on tortoises, as opposed to just scavenging dead animals. The following information summarizes salient points taken from Chapter 3, and are reiterated to provide a context for the discussion that follows: (1) Ravens mostly prey on immature tortoises that are up to about 110 mm (+/- 4.5 inches) in length. (2) Tortoises do not become sexually mature until they are about 180 mm (+/- 6 inches) in length. (3) Although carcass information suggests that raven predation was associated with about 10% of the known mortality in about 10% of the carcasses found, these data are insufficient to determine the scope or severity of raven predation. Nor is there any evidence to accurately portray the regional distribution of raven predation. (4) The data suggest that there is very little reproduction and detectable recruitment in areas of older and more recent die-offs. This conclusion is supported by the lack of subadult tortoises throughout most of the die-off regions. (5) The higher density tortoise areas shown on Map 3-7 are a good relative indicator of where subadult tortoises are most common, indicating that 43% of observed subadult tortoises occurred in 15% of the surveyed portion of the planning area.

The intensive raven management actions proposed by this alternative would not be sufficient, by themselves, to conserve or recover tortoises, because prescriptions focus on removal of ravens and nests, in the hope that fewer ravens would be present to prey on tortoise populations. This alone would be insufficient. Individual issues are summarized below:

Managing Ravens in Lieu of Establishing Conservation Areas: No conservation land base would be established under this alternative. This would mean that new construction, which is known to

attract ravens even as the land is being brushed, could occur in an unrestricted manner. As such, residential, commercial, industrial, solar and wind energy, and waste management facilities would be juxtaposed to raven management areas. Perhaps most importantly, new landfills could be constructed throughout the planning area, since there would be no conservation area for reference (i.e., no ability to prohibit new landfills *within five miles of a DWMA*). Management under BLM habitat categorization and USFWS critical habitat would not serve to minimize this impact, as those management tools fail to provide, by themselves, for the implementation of proactive management programs.

Continued Subsidization of Ravens: Ravens are known to use food and water sources associated with urbanizing areas. Because there would be no 1% AGD and because all private lands would be authorized for development, urbanization and other forms of new construction would put new raven food and water sources immediately adjacent to raven management lands. Therefore, even if raven management effectively works where implemented, the proximity to new and old development would seriously compromise the efficacy of the raven management plan. One must remember that ravens are wide-ranging predators and scavengers, known to travel as many as five miles from their nest site to secure food, which they bring back to the nest.

Raven Management Is Not Synonymous with Eradication of Nests and Adult Ravens: There is a misconception that eradication of offending ravens (or all ravens in certain areas) and removal of nests from human structures would effectively serve to eliminate raven predation. Eradication has only been officially practiced one time, by the BLM in the late 1980's. There have been no follow-up visits or data collection to determine any long-term effects or benefits of that program. Between new reproduction and immigration into the area, effective eradication of ravens may be very difficult, or impossible.

With regards to nesting, ravens are extremely adaptable. They readily nest on cliff faces, in Joshua trees, and other natural substrates. Proactive salvage of raven nests from transmission towers and related structures is a laudable action that would have the beneficial effect of minimizing the numbers of ravens supported by those structures. But there is no guarantee that nest removal from human structures will result in fewer ravens. Similarly, although fencing all roads (a draconian measure that would be cost prohibitive) would predictably reduce the amount of available food for ravens, there is no guarantee that this action will cause ravens to leave the desert. It is entirely possible that ravens will remain in the desert and seek out new food sources if the road-killed source is effectively eliminated. This may mean increased predation on wildlife, including tortoises.

Each of these measures and others assumes that removing nests or offending adults would result in fewer ravens and therefore less tortoise predation. There are no data to support this contention; in fact, available information is otherwise. There was no follow-up to the BLM's raven eradication program implemented at the DTNA and 29 Palms Marine Corps Base in 1989. Although a number of ravens were eradicated by both marksmen and poisoning there is no evidence that these reductions had any lasting effects. As given above, ravens are far ranging, aerial predators. The proximity of existing urban and suburban communities puts all higher density tortoise areas easily within the range of a raven's daily foraging patterns. Their ability to disperse in a few weeks or months is even more striking. For

example, one raven that was marked with yellow wing tags at the Edwards Air Force Base landfill was seen within several months at the Tehachapi landfill, some 40 linear miles to the west (Ric Williams, pers. comm., 2003).

Failure of the Raven Management Plan to Reduce Other Forms of Mortality: As provided for in FLMPA and elsewhere, recreational events are an authorized activity on public lands managed by the BLM. Ravens are curious predators that are drawn to human activity. Both competitive and non-competitive vehicle events will predictably attract ravens, and depending on their proximity to higher density tortoise areas, could seriously undermine the efficacy of the plan. Available data suggest that between 28% and 32% of the tortoise carcasses found where cause of death was given was attributable to vehicle crushing. The raven management plan would fail to reduce this serious, prevalent impact to the tortoise population. There is an assumption that raven management would allow for closure of fewer roads. If so, one can expect that tortoises will continue to be crushed by vehicles even if the raven plan is successful.

As envisioned, raven management would have no effect on cattle and sheep grazing in the planning area, both of which are known to degrade habitats on which tortoises rely. Both are also known to provide food and water resources for ravens, including water troughs and livestock carcasses, respectively. Raven management would do nothing to minimize the effects of gunshot mortality, which was associated with about 6% of the carcasses where cause of death was given. Nor would it effectively address pet collection, release of captive animals, intentional vandalism, intentional translocation (i.e., moving tortoises from one part of the desert to another), poaching, and a variety of other impacts associated with vehicle access. For the raven management plan to function in lieu of establishing a conservation area, there would still need to be a significant number of routes closed to minimize these and other mortality factors. However, the alternative does not provide for increased route closure, instead relying on closures identified relative to Alternative A.

Failure to Protect Adult Tortoises and Habitats: One of the most significant flaws with the alternative is it does nothing to protect adult tortoises. Reproductive female tortoises are generally at least 180 mm in length; ravens prey on tortoises up to about 110 mm in length. Therefore, all of the factors discussed above would continue to remove reproductive females from the population even if the raven eradication program were successful in alleviating impacts to sexually immature animals. The other fatal flaw with the alternative – its failure to address the protection or alleviate additional degradation of habitat – is discussed below with regards to focused disease management.

For these and other reasons, focused raven management in lieu of establishing conservation areas would fail to conserve and recover tortoises.

Disease Management: Disease management is founded on the assumption that, as its name implies, disease can be managed. First, it is important to reiterate (see discussion in Chapter 3) that all evidence for disease as the causal factor behind catastrophic die-offs is circumstantial. There are no field-based data or other evidence to definitively support the conclusion that disease is responsible for

either older or newer die-offs. Therefore, by extension, there is even less evidence that disease can be "managed".

Circumstantial Information and Evidence: The following information is available from the literature and recent surveys: (1) The pathogen, *Mycoplasma agassizii*, was first isolated from symptomatic tortoises at the DTNA in the latter part of the 1980's. The pathogen was not identified until the early 1990's, by Dr. Mary Brown at the University of Florida, Gainesville. Symptoms in living tortoises included runny noses, swollen eyelids, raspy audible breathing, and mud-caked nostrils. (2) Concurrently, many freshly dead tortoises were discovered on Dr. Berry's permanent study plots at the DTNA. However, gunshot mortalities, canid predation, and crushed tortoises were also observed either inside or outside the fenced area in some of those carcasses. (3) In 2000-2001, Dr. Berry and pathologists from the University of Florida discovered a second species of pathogen, *Mycoplasma cheloniae*, in the northern Lucerne Valley, in the southern portion of the Ord-Rodman DWMA. (4) Also since 2000, Dr. Berry and Dr. Francesco Origgii have isolated herpesvirus in tortoises in the same area (i.e., southern Ord-Rodman), although ELISA tests have not been completed for this pathogen, which would be necessary to determine the distribution of this newly discovered pathogen.

(5) Sign count data collected between 1998 and 2002 revealed that there are areas of older die-off (> 4 years) throughout the DTNA, through the Fremont-Valley, east to Cuddeback Lake, and south of there near Kramer Junction. (6) These areas correspond to the region in which tortoise declines of between about 70% and 90% were observed on Dr. Berry's permanent study plots between 1979 and 1996. (7) Regions of recent die-off (< 4 years) were identified in January 2003 using sign count data. (8) No permanent study plots occur in the Superior-Cronese DWMA proposed by Alternative A, so permanent trend plot data are not available to compare with these very recent findings. (9) Trend plot data are available for the Kramer Hills, Stoddard Valley, Lucerne Valley, and Johnson Valley study plots. In the first three plots, where declines ranged from 5% (Stoddard Valley) up to 60% (Lucerne Valley), there are neither newer nor older die-off regions. A newer die-off region in the western part of the Johnson Valley coincides with declines on that study plot, which were in excess of 70%.

Pending further input from experts[16], we assume that newer die-off regions represent recent, catastrophic die-offs that are far-reaching, from the western to the eastern extremes of the Superior-Cronese DWMA, proposed in Alternative A. All available information suggests that these die-offs are associated with spread of disease. The following observations are offered as a working hypothesis:

- It appears that local areas of older die-off first discovered at the DTNA are corroborated by the study plot data collected on the nine square miles studied by Dr. Berry and her fieldworkers. These comparisons suggest that the declines on five of the nine, individual square miles were indicative of a

16 In February 2003, maps and other data concerning the newer die-off areas were provided to recognized experts, including Dr. Elliott Jacobson, Dr. David Morafka, Dr. Kristin Berry, and Dr. Jill Heaton for their review and comment. It is our intent to discuss the response of these disease pathologis ts, epidemiologists, and desert tortoise experts (and their work professional associates) in the final West Mojave EIR/S, to be published in the fall of 2003.

regional die-off that substantially decimated tortoise populations from the proposed Fremont-Kramer DWMA north of Highway 58 from the late 1980's through the early 1990's. This hypothesis suggests that the declines observed on the study plots (local die-offs) were indicative of regional die-offs (north of Highway 58).

- This die-off continues in a limited manner, as evidenced by sign count carcasses of tortoises that have died within four years of being found. This hypothesis is supported by Dr. Berry's findings since 1996 that the populations on the study plots within the fenced DTNA continue to decline (pers. comm., Disease Workshop, November 2002; data remain unavailable, although they were requested on several occasions in 2002).

- There are regions of recent die-offs (< 4 years) throughout the entire Superior-Cronese tortoise population, which threaten to extirpate that population within the next 10 to 15 years. This hypothesis is based on the observation that older die-off regions occurred in the late 1980's, that there are no regions of higher tortoise densities in those areas, and that the higher concentrations observed in the Superior-Cronese DWMA may suffer the same fate in a similar amount of time.

- Overall, the region-wide distribution of older and newer carcasses suggests either (a) the die-off has spread from west to east or (b) there are separate events to the east that have resulted in recent die-offs, with smaller in-holdings of older die-offs. Whether one event or separate, unrelated events, the pattern suggests that disease has spread regionally or locally and has resulted to substantially diminished tortoise populations. This hypothesis is supported by the absence of higher concentration areas in older die-off regions (extirpation areas) and the presence of higher concentration areas within newer die-off regions. The hypothesis that these die-offs were and are due to disease is not supported by data, but is a working hypothesis to be tested by identified experts.

- Higher tortoise concentrations in the Superior-Cronese DWMA, which overlap with or are adjacent to recent die-off regions are in immediate danger of extirpation. This hypothesis is supported by the same observations given above.

- Recent die-off regions south of Highway 58 represent the spread of disease from north to south through culverts under the highway. Similar regions in the northern portion of the Ord-Rodman have been recently infected by diseased animals moving north to south through culverts under Interstates 15 and 40. Culverts in both areas allow for movement of tortoises from north to south. The "corridor" depicted on Map 3-13 is compelling evidence for this theory, as areas to the west (Barstow) and east (agricultural development between I-15 and I-40) are probably impassable to tortoises, and the recent die-off is immediately south of the only passable region.

- Given these observations, contiguous high-density tortoise areas in the southern portion of the Fremont-Kramer and Ord-Rodman DWMAs are in immediate harm's way of disease spread from north to south. This hypothesis is supported by the absence of recent die-off regions and the presence of higher tortoise concentrations in these two areas.

• Each of the hypotheses given above is weakened by the foreseeable likelihood that more carcasses are likely to occur where there are more tortoises. This weakness is only applicable to recent die-offs that overlap with higher tortoise concentration areas. The hypothesis is supported by the observation that no higher tortoise areas occur in older die-off regions.

• These observations suggest that it was (and is) disease, rather than drought, that was responsible for the die-offs. Although the western portions of the planning area are drier than elsewhere, the dry years of the late-1980's, culminating with the "March Miracle" of 1991, were region-wide. The decade preceding this period, moreover, was significantly wetter than average throughout the entire western Mojave Desert. If drought was the predominant factor, one may expect that older die-off regions would have occurred throughout the planning area. This hypothesis is weakened by the possibility that neither drought nor disease, alone, may be responsible for tortoise die-offs. The older die-off regions west of Highway 395 have been (and continue to be) associated with unusually high levels of recreational vehicle impacts and sheep grazing, which continue to be prevalent outside the fenced DTNA. Therefore, it is entirely possible that drought was the trigger that caused the die-offs in the northern portion of the Fremont-Kramer; that tortoises stressed by human uses and associated habitat degradation were physiologically susceptible to disease pathogens; and that URTD or some combination of diseases was responsible for the regional population crash, but human use and habitat degradation was the ultimate cause.

Implications For Future Disease Management In The Planning Area: This hypothesis suggests that focused disease management could fail because the disease has already seriously compromised the efficacy of the proposal. The hypotheses does suggest, however, that a program to survey for new carcasses in higher concentration areas on an annual basis, in concert with erecting emergency fences along existing roads, may be an extremely useful management tool to minimize the effects of disease.

These observations emphasize the importance of the Ord-Rodman and Pinto Mountain areas. There is no evidence that either of these regions has been affected with regional die-offs, with the exception of the seven square mile area immediately south of Interstate 40. Their isolation from the larger die-off regions makes them essential to tortoise conservation and recovery in the planning area.

4.7.2.3 Mohave Ground Squirrel

Alternative F relies on MGS conservation in the context of the MGS CA and proactive management on BLM Category I and II habitats and USFWS critical habitat. The original alternative, developed for the tortoise, substitutes conservation of an identified land base with intensive management of common ravens and diseases affecting tortoises. However, it has been carried over as a proposal relative to MGS conservation. Under this alternative there would be no establishment of DWMAs for

tortoise conservation, although the MGS CA would be designated for MGS conservation.

Similar impacts given for the tortoise and/or MGS (mostly in Alternative A for the two species) would affect the following programs where the two species ranges coincide: Los Angeles County Significant Ecological Area; Sierra Foothills Habitat Connector; Species-specific Conservation Areas; Biological Transition Areas; Compensation and Fee Structure; DWMA Management within the MGS CA; Incidental Take Authorization; 1 % Allowable Ground Disturbance; Multiple Use Class Designations; Habitat Credit Component; Habitat Restoration and Reclamation; Land Acquisition; Mining; Conservation Relative to Military Bases; Commercial Filming and Plant Harvest; Dump Removal and Waste Management; Education; Feral Dog Management Plan; Fire Management; Raven Management Plan; Utilities Construction and Maintenance; Livestock Grazing; Motorized Vehicle Access; Non-competitive Events (Dual Sports); Existing Open Areas and New Recreational Areas; Hunting and Shooting; Competitive Events; Stopping, Parking, and Camping; Surveys (Presence-Absence Surveys, Exploratory Surveys, Surveys for Other Species); Road Maintenance; and Monitoring.

Table 4-62 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under previous alternatives. As such, the programs listed above are not reiterated in the table.

Table 4-62
Mohave Ground Squirrel Impacts of Alternative F

BENEFITS	RESIDUAL IMPACTS
<u>Conservation Area</u> Size of Conservation and Incidental Take Areas • (AF-1) The 2,693 mi^2 MGS CA and pertinent species-specific habitat conservation areas given in Alternative A would benefit MGS conservation.	<u>Conservation Area</u> Size of Conservation and Incidental Take Areas • (AF-1) The two DWMAs would not be established so 823 mi^2 corresponding to that area within the MGS range would not be managed for the tortoise or benefit from that higher level of protection.
<u>Management Structure within the MGS CA</u> 1 % Allowable Ground Disturbance Best Management Practices • (AF-14) BMPs would minimize direct impacts.	<u>Management Structure within the MGS CA</u> 1 % Allowable Ground Disturbance • (AF-5) Failure to apply the 1 percent allowable ground disturbance threshold within the MGS CA would result in unlimited take (on a case-by-case basis), and significantly undermine the efficacy of habitat protection required for the MGS. Best Management Practices • (AF-14) BMPs would not minimize indirect impacts.
<u>Management Structure within the MGS CA</u> HMP Instead of ACEC Designation • (AF-1) The MGS CA would be established as a Wildlife Habitat Management Area, which would marginally benefit the MGS.	<u>Management Structure within the MGS CA</u> HMP Instead of ACEC Designation • (AF-1) Failure to provide for ACEC management and protection would minimize the conservation value of the area, and result in lower spending and implementation priorities.

Management Structure within the MGS CA Category I, II, & III and Critical Habitats for Tortoises • (AF-1) Benefits described above for management in the context of Category I and II habitats and desert tortoise critical habitat would result. • (AF-10) Allowing dogs off leash under the control of their owners in Category I and II tortoise habitat would result in marginal benefits to MGS conservation, as pets are not considered a significant threat to the MGS.	Management Structure within the MGS CA Category I, II, & III and Critical Habitats for Tortoises • Management in the context Category III Habitats would mitigate impacts on a case-by-case basis, provide for less conservation than either Category I and II
Miscellaneous Conservation Programs Law Enforcement • (AF-12) Failure to employ new law enforcement rangers would not substantially detract from MGS conservation, as the MGS does not face many of the threats that adversely affect tortoises.	Miscellaneous Conservation Programs Law Enforcement • (AF-12) Existing law enforcement should be directed more towards habitat protection (i.e., prohibit dumping, cross-country travel outside open areas, etc.), which is not the current focus.
Miscellaneous Conservation Programs Signing and Fencing DWMAs • (AF-15) The fencing program would the same beneficial impacts proposed for Alternative A.	Miscellaneous Conservation Programs Signing and Fencing DWMAs • (AF-15) Failure to fence or sign the DWMA would have the marginal adverse effect of not providing needed education with regards to MGS protection and conservation.
Transportation Highway Fencing and Culverts • (AF-11) Considering CalTrans highway proposals on a case-by-case basis would constitute a marginal beneficial impact.	Transportation Highway Fencing and Culverts

Although the MGS conservation program is similar to that proposed for Alternative A, and the summary comments for that alternative would generally apply to Alternative F as well, the Alternative F program would be less effective due to the focus of tortoise management on disease management and reduction of raven predation rather than the setting aside and protection of habitat. Components of the Alternative A tortoise strategy that would indirectly benefit MGS, such as the designation of tortoise DWMAs as ACECs and the implementation of BMPs for new ground disturbing projects, would not be implemented. Although there would not be increased law enforcement presence, this is not expected to substantially detract from MGS conservation.

4.7.2.4 Bats

Impacts to bats would be as described for Alternative A.

4.7.2.5 Other Mammals

Impacts to other mammals (bighorn sheep, Mojave River vole and yellow-eared pocket mouse) would be as described for Alternative A.

4.7.2.6 Birds

Covered bird species found within the proposed DWMAs of Alternative A receive protection by the development disincentive of the 5:1 mitigation fee amount ratio. They also would benefit by acquisition of private lands, imposition of the utility avoidance measures, and the 1% limit on allowable new ground disturbance. Under Alternative F, the burrowing owl and LeConte's thrasher would lack these conservation measures and be subject to impacts. Other birds found within the proposed DWMAs, including golden eagle and prairie falcon, are located in remote areas and would not necessarily benefit from the DWMA conservation measures. Reduction in the number of ravens may eliminate some competition for nest sites, benefiting the prairie falcon.

Impacts to all other covered bird species would be as described for Alternative A.

4.7.2.7 Reptiles

Impacts to the Panamint alligator lizard, San Diego horned lizard, and Southwestern pond turtle would be as described for Alternative A.

The Alvord Mountain population of the Mojave fringe-toed lizard would lack the conservation benefits provided by the DWMA designation in Alternative A. This includes the development disincentive of the 5:1 mitigation fee amount ratio, acquisition of private lands, and the 1% limit on allowable new ground disturbance. The remote location and lack of threats make this a minor impact in the short term, though this population may be genetically distinct and important to conservatin in the long term.

4.7.2.8 Plants

Impacts to the following plants would be as described for Alternative A: alkali mariposa lily, carbonate endemic plants, Charlotte's phacelia, flax-like monardella, Kelso Creek monkeyflower, Kern buckwheat, Mojave tarplant, Parish's alkali grass, Parish's popcorn flower, Red Rock poppy, Red Rock tarplant, Reveal's buckwheat, Salt Springs checkerbloom, Shockley's rock-cress, short-joint beavertail cactus, triple-ribbed milkvetch and white-margined beardtongue.

Covered plant species found within the proposed DWMAs of Alternative A receive protection by the development disincentive of the 5:1 mitigation fee amount ratio. They also would benefit by acquisition of private lands, imposition of the utility avoidance measures, and the 1% limit on allowable new ground disturbance. Under Alternative F, the following plants would lack these conservation measures and be subject to adverse impacts: Barstow woolly sunflower, crucifixion thorn, desert cymopterus and Mojave monkeyflower.

Plant species with designated conservation areas would not be negatively impacted by the lack of the DWMA designation. These include Barstow woolly sunflower, desert cymopterus, Lane Mountain milkvetch, Mojave monkeyflower, and Parish's phacelia. The specific prescriptions applicable to these conservation areas would beneficially impact these species. The very few

occurrences of Barstow woolly sunflower and desert cymopterus found outside the conservation areas would receive no special protection on private lands. No adverse impact is expected from Alternative F, despite their rarity, because of the lack of threats in these areas.

Crucifixion Thorn: Crucifixion thorn would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Superior subregion. Because of the remote areas of occurrence of crucifixion thorn, no adverse impacts from Alternative F are expected to this species for the duration of the West Mojave Plan.

Desert Cymopterus: Desert cymopterus would remain protected on public land by the requirement of avoidance and would benefit from route designation in the Kramer and Superior subregions. Because of the remote areas of occurrence of desert cymopterus, no adverse impacts are expected to this species for the duration of the West Mojave Plan.

Little San Bernardino Mountains Gilia: Without a proactive approach to protection of the limited desert wash habitat with the provision of a Special Review Area, gilia populations would be expected to decline over the long term, perhaps to the point where the plant would become listed as threatened or endangered.

4.7.3 Socio-Economics

4.7.3.1 Livestock Grazing

Impacts would be as described for Alternative G, the No Action Alternative (below).

4.7.3.2 Mineral Development

Few or no habitat protection measures would be placed on mineral operators if the presence-absence surveys show no tortoise sign, an economic advantage compared with Alternative A. The Habitat Conservation Area would be reduced from 2.2 million acres to 1.3 million acres. Instead of 5:1 compensation being applied to DWMA's with ACEC status, it would apply to the HCA and designated tortoise critical habitat of similar size (if evidence of tortoise presence is found). One noteworthy exception would be the Rand Mountain-Fremont Valley area, which would be part of a DWMA under Alternative A but is not designated as critical habitat. Because the proposed withdrawal for the Rand Mountain-Fremont Valley ACEC would apply to both Alternatives (A and F), mineral development would be limited or mineral deposits removed from development through acquisition under the withdrawal. Even without the withdrawal this area would be an MGS conservation area requiring 5:1 compensation, the same as for Alternative A. The compensation ratio for Category III Tortoise Habitat, if not within an HCA, would be 1:1. Presence-absence surveys would be required for the tortoise in all areas unless it is known that tortoises are absent. Mineral development projects under 10 acres would be subject to the 21 mitigation measures for protection of the desert tortoise developed in the existing Small Mining biological opinion.

4.7.4 Cultural Resources

Controlling disease and predation on tortoises is not expected to cause significant impacts to cultural resources. Alternative A's motorized vehicle access network is carried into this alternative so those impacts will be the same as described in Alternative A. Allowance of motorized vehicle speed events on a case-by-case basis will affect cultural resources along or near routes on which these events are permitted. These actions will require full inventory, avoidance measures, or mitigation of impacts to cultural resources in order to comply with law and regulation, which would impact staff workload and budgets.

4.7.5 Cumulative Impacts

Biological Resources: Cumulative impacts of Alternative F to biological resources would most likely be significantly greater than Alternative A because no additional conservation measures would be applied in the Coyote Basin area, Pinto Mountains or Ord Mountains. Without establishment of DWMAs and their conservation measures and disincentives to development, the risk of fragmentation of habitats in the long term is high. Degradation of public and private lands by edge effects from adjacent development and from isolated development within large habitat blocks is also a likely adverse scenario.

Minerals: Cumulative mineral impacts would be similar to alternative A..

Livestock Grazing: There would be few new cumulative effects. Most cumulative effects have already occurred when the stipulations from the Biological Opinions were implemented in the early 1990's. The new stipulations from the most recent extension may temporarily or permanently reduce livestock numbers or allotments.

4.8 ALTERNATIVE G: NO ACTION

Impacts would be as described for Alternative A, except as discussed below.

4.8.1 Air Quality

The No Action alternative would not result in any changes in current air quality or future trends. Future management actions would be guided by existing management plans, rules and policy that are restrictive on most of the activities that have the potential to emit pollutants on BLM lands. Future activities would be subject to the current air quality rules and emission control requirements. The SIPs all are required to show attainment of the NAAQS. All of the PM_{10} nonattainment areas except for Owens Valley have met requirements to be reclassified by the USEPA to a Maintenance status. Owens

Valley is projected to achieve attainment by 2006.

4.8.2 Biological Resources

4.8.2.1 Natural Communities

Adverse impacts of the No Action Alternative to natural communities within the West Mojave Plan fall into three categories:

1. Fragmentation
2. Degradation
3. Substantial loss or modification of rare community types.

Fragmentation is the division of large habitat blocks into smaller units, creating barriers, edge effects, or inholdings with land uses incompatible with conservation. Some projects, such as canals or paved roads, create much larger adverse impacts to the integrity of natural communities than others, such as single-family residences.

The existing large blocks of creosote bush scrub and saltbush communities would be subject to fragmentation over time, particularly in the western and southern parts of the planning area. Large blocks would remain in the central and eastern regions. Without route designation, these blocks are subject to fragmentation by dirt roads and trails over time, although the magnitude of these impacts is unknown. The mountain foothill vegetation consisting of relatively large blocks of pinyon pine woodland, juniper woodland, Mojave mixed woody scrub and chaparral communities would experience worse fragmentation from rural development on private land. These communities may lose most of their ecological function.

Degradation of the natural communities by recreational use, fire, trash dumping, infrastructure improvements and edge effects from adjacent development is a predicted consequence of the No Action Alternative. Without route designation on public lands and participation of the local jurisdiction in conservation planning, gradual degradation of natural communities would proceed without restraint. Desert washes and playas would be particularly vulnerable.

The rare and unique communities like native grassland, interior live oak woodland, montane meadow and gray pine-oak woodland are the most at risk. Their small size makes the proportional impacts of fragmentation and degradation larger. Existing wetland protection laws would probably adequately protect valuable and limited natural communities like riparian woodland, riparian scrub, alkali seeps and springs and fan palm oases from conversion to urban uses. Rare species within these wetlands could be lost over time without pro-active conservation measures, however.

Certain smaller communities without major threats, such as greasewood scrub, rabbitbrush scrub and some dune communities would continue in a productive state.

Some additional conservation may take place in the future under the No Action Alternative. Large areas of critical habitat will remain and provide a deterrent to development. Compensation lands for projects affecting listed species will continue to add to the conservation land base. Additional compensation land and set-asides may be established from CEQA review of development projects by local jurisdictions. BLM will manage Category 1 desert tortoise habitat in a protective manner. Los Angeles County may substantially expand the SEAs, which would beneficially impact a number of communities in three areas: rare native grassland and wetland communities near the San Andreas Rift Zone; Joshua tree woodland, juniper woodland and pinyon pine woodland in the San Gabriel Mountains foothills ad dense Joshua tree woodland in the western Antelope Valley. The City of Palmdale may establish open space along the San Andreas Rift Zone, which would protect important wetland habitat.

The overall impact of the No Action alternative on natural communities is adverse and significant under CEQA because of the negative effects on rare vegetation types and fragmentation and degradation of large habitat blocks. The West Mojave ecosystem is in need of pro-active conservation and no action is tantamount to neglect.

4.8.2.2 Desert Tortoise

Alternative G, the No Action alternative, would result in no changes to current management. There are still new data and information that could be used by the BLM, USFWS, CDFG, and private jurisdictions that could help fine-tune current management, and some of these are suggested, but for the most part, there would be no changes. Chapter 3 is the best place Benefits and residual impacts associated with the No Action alternative are suggested in Table 4-63, although Chapter 3 provides far more information.

Table 4-63
Tortoise Impacts of Alternative G

BENEFITS	RESIDUAL IMPACTS

BENEFITS	RESIDUAL IMPACTS
DWMA DESIGNATION AND CONFIGURATION	
Recent and Current Tortoise Occurrence	Recent and Current Tortoise Occurrence **Alternative G does not include the following acreage in a proactively managed conservation area[17]:** • 11,134 mi^2 within the 2002 range • Only part of the range expressly managed for tortoises would be the 40 mi^2 DTNA • 563 mi^2 (100%) of higher density areas • 411 (97%) of observed tortoises • 2,610 mi^2 (100%) of USFWS critical habitat • 1,405 mi^2 of BLM Category I (97%) and 549 mi^2 of Category II (100%) habitats
Land Management in the Absence of DWMAs • BLM management of public lands within the planning area would still be directed by designations of Category I, III, and III, critical habitat, ACEC management plans, and other applicable management plans	Land Management in the Absence of DWMAs • The weakness described in other alternatives with regards to management under the scenarios given to the left would still apply
Land Management Adjacent to Public Lands	Land Management Adjacent to Public Lands • Adjacent land management would still have effects on public lands relative to the following areas: • Fort Irwin expansion area • BLM OHV Open Areas • Urban interface at Barstow, Silver Lakes, Lucerne Valley, and other areas
DESIGNATION AND MANAGEMENT OF EXISTING ACECS	
Size Relative to the Existing Tortoise ACEC • The 40 mi^2 DTNA would continue be proactively managed as a tortoise ACEC • There would be no management conflict with regards to critical habitat inside versus outside DWMAs	Size Relative to the Existing Tortoise ACEC • Critical habitat adverse modification determinations would still apply to public lands, would not apply to private lands, and in either case, would provide very little real protection to tortoises or habitats
BLM ACEC Management • There would be no need to modify ACEC management plans at the DTNA or elsewhere • The BLM would be obligated to implement its ACEC management plan for the Rand Mountains ACEC, and in the meantime continue to curtail uses (particularly by vehicles) in the ACEC	BLM ACEC Management • The BLM has not fully implemented the ACEC management plan for the Rand ACEC, which continues to be degraded by OHV impacts
BLM Management of Category I, II, & III Habitat • BLM Category I & II habitat management goals would continue to provide direction to maintain and/or increase stable and viable populations; this would include relatively higher compensation rates associated with the MOG formula, but little else • BLM would also be directed to limit declines through mitigation in Category III	BLM Management of Category I, II, & III Habitat • Management goals provide direction, but little other pragmatic protection of tortoises in designated areas
Plan Implementation • Not applicable, as there would be no plan to implement	Plan Implementation
Federal Permitting	Federal Permitting

[17] The acreages given above exclude the 40 mi^2 managed for tortoises at the DTNA.

BENEFITS	RESIDUAL IMPACTS
• Federal permitting would continue under Sections 10 and 7 of FESA and have the advantages and disadvantages described under previous alternatives; Section 7 would continue to function to minimize direct impacts, although it would have little effect on indirect impacts that result	• Significant problems with permitting under Section 10 would be perpetuated
State Permitting • State permitting would continue under Section 2081 for private developers and 2090 for State lead agencies (i.e., Caltrans, water districts, etc.)	State Permitting • Significant problems with permitting under Section 2081 would be perpetuated
Compensation & Fee Structure • Compensation would continue under the MOG formula as described above and be commensurate with the level of impact	Compensation & Fee Structure
MAINTAINING CURRENT MULTIPLE USE CLASSES	
Class L and C • Class L lands would continue to be managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished; Class C would be even more protective	Class M, and I, and Unclassified • Class M and I lands, and unclassified lands, would continue to be managed under guidelines that allow for uses that would be incompatible (i.e., Class I) or minimally protective (i.e., Class M) for tortoises; overall, very little protection would be provided except in Class L and C
ACEC Prescriptions Supercede Class M • Not applicable, as no changes would result	ACEC Prescriptions Supercede Class M • Not Applicable
1% ALLOWABLE GROUND DISTURBANCE	
Function to Minimize Impacts • Not applicable, as no changes would result	Function to Minimize Impacts • Not applicable, as no changes would result
PRIVATE LAND ACQUISITION AND PUBLIC LAND DISPOSAL	
Acquisition Priorities • Provides data that would allow BLM to acquire private lands that would mo st likely alleviate observable human impacts and promote conservation	Acquisition Priorities
BLM Land Tenure Adjustment (LTA) • LTA program would continue to result in retention and consolidation of important tortoise habitats	BLM Land Tenure Adjustment (LTA) • Public lands, in the absence of a designated conservation area, would be vulnerable to extremely large projects (i.e., Venture Star, Fort Irwin Expansion, etc.), without the benefit of new regulations or prohibitions against public land disposal in areas designated for conservation
Motorized Vehicle Access • The BLM has been obligated since 1980 to complete route designation, which would still be required under this alternative. This is a highly beneficial impact even if routes are not closed where they would best benefit tortoise conservation	Motorized Vehicle Access
NEW AGRICULTURAL DEVELOPMENT	
• Same as Alternative A	• Same as Alternative A
COMMERCIAL FILMING ACTIVITIES	

BENEFITS	RESIDUAL IMPACTS
• Given the new information, BLM could still modify its management in higher density areas and other places to facilitate current management, which already appears to be working to minimize. However, there is no guarantee that this would happen under this alternative	• No action alternative fails to provide for a higher level of management on private lands
CONSTRUCTION ACTIVITIES	
• Construction, fee compensation, surveys, etc. would continue to be authorized under the context of Section 7 and other regulatory management that more or less provides for protection	• Guidelines and regulatory requirements implied to the left would allow for habitat fragmentation (i.e., wind and solar energy development, new county roads, etc.), mining, utilities construction, etc. that will continue to slowly degrade tortoise habitats, even if direct impacts are adequately minimized and mitigated • Since BLM's management is necessarily restricted to public lands, the adverse impacts associated with development on private lands would continue in an unabated manner and perpetuate serious inconsistent problems and impacts • Would fail to provide for consistent standards implemented across multiple jurisdictions, which would perpetuate problems
DISEASE MANAGEMENT	
• Disease management would continue in the context of direction from the MOG, DMG, and upper level management entities, which would likely be sufficient to ensure that "break through" technologies are implemented	• Funding, research, and other factors that may lead to expeditious handling of disease would not be available under current management
DROUGHT	

BENEFITS	RESIDUAL IMPACTS
Motorized Vehicle Access • BLM would still be obligated to implement a designated route network, which is the single most effective measure to alleviate human impacts during time of drought, particularly to minimize vehicle use in and alongside washes. As such, there would still be the closure of 117 of 177 linear miles (66%) of routes identified as occurring within washes in DWMAs. There are certainly more than 177 linear miles of washes in DWMAs, however, since route use would be restricted to only those routes that are designated as open, washes that are not included would not be available for vehicle use, which would be a very significant beneficial impact. • Route reductions in higher density tortoise areas in DWMAs would serve to alleviate human-induced stresses during drought periods	Motorized Vehicle Access • Alternative would fail to close 60 linear miles (34%) of roads in DWMAs that coincide with washes
EDUCATION PROGRAM	
• It is likely that existing education programs would be augmented in light of new data and information that has come to light during plan preparation. The extent of this augmentation is unknown, and therefore cannot be analyzed	
ENERGY AND MINERAL DEVELOPMENT	
New Development • Mining would continue in the context of existing biological opinions regulating sites smaller than 10 acres • Under its multiple use context, and in the absence of establishing conservation areas, large mines would be permitted, and impacts minimized and mitigated on a case-by-case basis. The significance of this impact would be related to the size, frequency, and distribution of new, larger mines, which cannot be analyzed, as no foreseeable larger mines are known at this time	New and Existing Development • Does not adequately address how existing and new contamination associated with mining activities would be remedied and avoided • There is no indication how impacts associated with new haul roads would be minimized or avoided
New Exploration • New exploration would still be regulated by BLM-approved Plans of Operation, which for the most part, serve to minimize this type of	New Exploration
Habitat Credit Component • Not applicable	Habitat Credit Component • Not applicable
FERAL DOG MANAGEMENT	
	• There would be no Feral Dog Management Plan, which would fail to address this serious impact that will become more serious with time
FIRE MANAGEMENT	

BENEFITS	RESIDUAL IMPACTS
• Existing programs would continue to be implemented on public lands with the intent of minimizing fire fighting impacts • New data and information are now available that would help the BLM minimize impacts of fire fighting activities, although it is not known if this information would be proactively used	
CATTLE GRAZING ON BLM ALLOTMENTS	
• Beneficial impacts associated with current management of cattle grazing are minimal, and have been discussed in other alternatives	• Impacts associated with current management of cattle grazing are multiple, and have been discussed in other alternatives
SHEEP GRAZING ON BLM ALLOTMENTS	
• Beneficial impacts associated with current management of sheep grazing are minimal, and have been discussed in other alternatives	• Impacts associated with current management of sheep grazing are multiple, and have been discussed in other alternatives
GUZZLERS	
• Not applicable; see Alternative B	• Not applicable; see Alternative B
HABITAT CREDIT COMPONENT	
• Not applicable, as this program would not be established	• Not applicable, as this program would not be established
HEAD STARTING PROGRAM	
• Not applicable, as this program would not be established	• Not applicable, as this program would not be established
LAW ENFORCEMENT	
• Same as Alternative B	• Same as Alternative B
MOTORIZED VEHICLE ACCESS NETWORK	
Overall Importance • Designating and implementing a motorized vehicle access network in DWMAs that is supported by land use laws and compatible with tortoise recovery is the single most important management action that could be implemented to minimize the widest variety of known human impacts. The BLM is obligated by the CDCA Plan to identify and implement this network in the absence of the WMP, which is significant beneficial impact • See Alternative A and B for beneficial impacts	Overall Importance • See Alternative A and B for impacts
PLANT HARVEST	
• Same as Alternative B	• Same as Alternative B
RAVEN MANAGEMENT	

BENEFITS	RESIDUAL IMPACTS
Coordination and Participation • There would be no proactive raven management plan. However, the USFWS was recently tasked by the DMG to take a proactive role in raven management. If this occurs, one may expect to see more proactive programs identified in future USFWS biological opinions, which would positively affect BLM's management where it serves as the Federal Lead Agency for the authorized project	Coordination and Participation • Without a focused plan, there are likely to be minimal proactive measures to address raven predation, which would be expected to occur as at present. This would likely be more significant on private lands than on public lands, given the nature of private land development (i.e., residential
RECREATION ACTIVITIES	
• The many small nuances associated with beneficial impacts of this alternative are captured in other alternatives, and not reiterated here	• The many small nuances associated with impacts of this alternative are captured in other alternatives, and not reiterated here
TRANSPORTATION	
• There are few beneficial impacts associated with no action; the few that may occur are given in other alternatives, and not reiterated here	• There are numerous impacts associated with no action; the many that may occur are given in other alternatives, and not reiterated here
UTILITIES	
• There are few beneficial impacts associated with no action; the few that may occur are given in other alternatives, and not reiterated here	• There are numerous impacts associated with no action; the many that may occur are given in other alternatives, and not reiterated here
WEED CONTROL	
• Not applicable, as this program would not be implemented	• Not applicable, as this program would not be implemented

Chapter 3 is the best place to see problems associated with current management that would be perpetuated under the No Action alternative. Perhaps most significant is the failure to establish a conservation land base in the form of DWMAs, the pros and cons of which are best elucidated in the analyses of Alternatives E and F. Although there are serious problems associated with public land management as it relates to tortoise conservation and recovery (i.e., livestock grazing, wind energy development, disposal of public lands for large-scale development, lack of raven and disease management, etc.), the Section 7 consultation process has worked relatively well to minimize direct impacts; indirect impacts are still problematic and would not be addressed without proactive conservation measures described in Alternative A and elsewhere. The more serious impacts are with regards to private land development and other issues, which would also be perpetuated under this alternative. Again, these are best elucidated in Chapter 3 and in Alternatives B, E, and F.

4.8.2.3 Mohave Ground Squirrel

Alternative G, the No Action Alternative, would result in no new management prescriptions, DWMAs, or MGS CA establishment. There are very few beneficial impacts associated with current management; those that occur are listed above, particularly under MGS Alternative B.

The majority of the impacts would be adverse, and many of them significant. The *impacts* identified for the following programs are iterated throughout all previous alternatives, and are not reiterated herein: Biological Transition Areas (BTAs); Los Angeles County Significant Ecological Area; Sierra Foothills Habitat Connector; Species-specific Conservation Areas; 1 % Allowable Ground Disturbance; HMP Instead of ACEC Designation; Multiple Use Class Designations; Conservation Relative to Military Bases; Commercial Filming and Plant Harvest; Dump Removal and Waste Management; Education; Feral Dog Management Plan; Fire Management; Habitat Credit Component; Habitat Reclamation and Restoration; Land Acquisition; Law Enforcement; Mining; Raven Management Plan; Signing and Fencing DWMAs; Utilities Construction and Maintenance; Livestock Grazing; Motorized Vehicle Access; Competitive Events; Non-competitive Events (Dual Sports); Hunting and Shooting; Stopping, Parking, and Camping; Surveys (Presence-Absence Surveys, Exploratory Surveys, Surveys for Other Species); Highway Fencing and Culverts; Road Maintenance; and Monitoring

Table 4-64 reports only those benefits and residual impacts as they relate to MGS conservation that are different from the impacts identified under previous alternatives.

Table 4-64
Mohave Ground Squirrel Impacts of Alternative G

BENEFITS	RESIDUAL IMPACTS
Conservation Area Size of Conservation and Incidental Take Areas • Management within the DTNA would continue to benefit MGS conservation.	Conservation Area Size of Conservation and Incidental Take Areas • Failure to designate new conservation areas for the MGS would likely result in habitat fragmentation, which could significantly impact the MGS and its habitats. Continued management by cities and counties under existing general plans would have minimal benefit to the species.

BENEFITS	RESIDUAL IMPACTS
Management Structure within the MGS CA DWMA Management within the MGS CA	Management Structure within the MGS CA DWMA Management within the MGS CA • Failure to provide specific, new conservation measures for the MGS, and relying on the DTNA as the only proactively managed place outside military bases for MGS conservation, would constitute a significant impact. • No new measures would be identified relative to MGS conservation. Management would continue to be applied on private lands, but would not significantly affect management on public lands, except as provided for under CDCA guidelines and an MOU established between the BLM and CDFG. Significant impacts are likely to result from such an approach. Incidental Take Authorization • Incidental take authorization under Section 2081 would continue to be sought on private lands regardless of the presence or absence of the species. Compensation would continue in a variable manner and fail to provide for regional conservation. These and other factors would perpetuate existing problems and constitute a significant impact. Compensation and Fee Structure • Continuing to implement the MOG formula would mostly apply to tortoises on public lands, although it is also applied to private lands based on their proximity. As such, the MOG formula would only apply to MGS where the two species coincide. Therefore, problems with regional minimization and mitigation of impacts to the MGS would be perpetuated and constitute a significant impact.
Management Structure within the MGS CA Category I, II, & III and Critical Habitats for Tortoises • Management in the context of tortoise habitat categories, critical habitat, and protection provided by CESA on private lands would continue to provide for limited, marginal protection.	Management Structure within the MGS CA Category I, II, & III and Critical Habitats for Tortoises

The No Action Alternative would result in significant impacts due to its failure to alleviate habitat loss and degradation throughout the MGS range. The best opportunity to conserve habitat is on public lands managed by the BLM, where 2,478 mi^2 occur within the range. These lands are more likely to be degraded through authorized uses (i.e., grazing and vehicle recreation); except for transfer of public lands to private ownership, the outright loss of habitat is less likely. The loss (and degradation) of habitat is most likely to occur on private lands. Although individual MGS may tolerate habitat degradation, as evidenced by anecdotal observations in urbanizing areas, there is no evidence to suggest that the species can occupy bladed areas, agricultural areas, and lands that are physically covered by asphalt and cement.

Region-wide trapping surveys in 2002 suggest that the MGS may be more common north of

Highway 58 than to the south (Phil Leitner, 2002 memo), although this is speculation. The success of MGS conservation may always be in question, given the squirrel's biology to go through "boom and bust" cycles described in Chapter 3. Whereas increasing numbers and stable populations provide a measure of the success of tortoise conservation, the success of conserving the MGS would necessarily be measured by the amount and quality of habitat within the range. It is apparent that the MGS would disappear from suitable habitats in one year, only to be found there in the future.

4.8.2.4 Bats

The No Action alternative would perpetuate the existing situation for bats, which are relatively unknown and commonly ignored in environmentally reviews. Though larger mining projects that could impact bats would receive adequate review by local and federal jurisdictions, small sites (bridges, tunnels, old buildings) that may harbor significant roosts could be lost without knowing.

The known significant roosts on public lands (BLM and NPS) would probably remain intact, but would be at risk from human disturbance. The extreme sensitivity of these sites during the maternity or hibernation periods makes this risk biologically unacceptable.

4.8.2.5 Other Mammals

4.8.2.5.1 Bighorn Sheep

Because bighorn are primarily a wilderness species within the West Mojave, impacts are not anticipated to be adverse or significant, especially in the short term. In the long term, potential dispersal corridors could be lost to development or construction of barriers.

4.8.2.5.2 Mojave River Vole

As long as groundwater sufficient to support riparian habitat in the Mojave River between Victorville and Helendale is maintained, habitat will remain for the Mojave River vole. Existing wetland laws should suffice to protect the surface conditions, and no adverse impacts are anticipated. If the Mojave Basin Adjudication is not sufficient to stop the overdraft and restore groundwater to the Mojave River, drying of the surface would cause the habitat to shrink to areas where permanent water is present, as at the upper and lower Mojave Narrows. The contraction in range for this narrow endemic species would be very adverse and significant and could lead to its listing as a threatened or endangered species.

4.8.2.5.3 Yellow-eared Pocket Mouse

Threats to yellow-eared pocket mouse are few, and information about its numbers and precise distribution is inadequate to accurately predict the future. Effects of grazing are not known. Most known sites within the known range are protected as wilderness or ACECs. Even with no action, few

adverse impacts are expected to this species overall. The southern portion of the range in the Kelso Valley is subject to fragmentation by rural development in the long term.

4.8.2.6 Birds

4.8.2.6.1 Bendire's Thrasher

Without a program of additional surveys, the causes of the apparent decline of this species in the West Mojave would remain unknown. Off-site mitigation for expansion of training at Fort Irwin (if approved) would increase public land ownership of occupied habitat on Coolgardie Mesa. Without route designation, an adverse effect on this vehicle-sensitive bird is expected. No apparent threats exist in the Kelso Valley habitat.

4.8.2.6.2 Brown-crested Flycatcher

Existing BLM management at Big Morongo Canyon ACEC would conserve brown-crested flycatcher at that location. Occurrences at Mojave Narrows Regional Park are also well protected. In the remainder of the Mojave River between Victorville and Helendale, existing wetland laws would serve to conserve the riparian habitat. The Mojave Basin Adjudication, if enforced, would maintain groundwater levels sufficient to support the occupied habitat. If groundwater levels are not maintained, the riparian habitat would slowly decline, leading to a decline in the numbers and occupied acreage of habitat for this neotropical migrant.

4.8.2.6.3 Burrowing Owl

The No Action Alternative would continue the haphazard system of defining impacts and mitigation for burrowing owl, which is most often located at urban or suburban development sites. A gradual decline in the numbers of this species is expected. This impact is not adverse or significant to the species as a whole, which occupied grassland habitats in the Great Plains and agricultural habitats in the Central Valley and Imperial Valley of California.

Alternative G would provide no benefit of route designation to the burrowing owl, which can be easily disturbed by vehicles near nest sites. Taking no action would perpetuate the risk of disturbance and loss of nest sites throughout the lower elevations of the West Mojave.

4.8.2.6.4 Ferruginous Hawk

No action would continue the practice of permitting unsafe electrical distribution lines in some locations, which could include important wintering areas for ferruginous hawk. The continuing electrocution of these large birds is expected, thought the number of hawks affected is unknown. BLM will require raptor-safe power lines on its lines for new rights-of-way. Without a program of monitoring to detect problem poles, no opportunity to retrofit and correct the problem would exist, apart from the

voluntary (and largely successful) efforts of utilities such as Southern California Edison Company, that engage in this effort.

4.8.2.6.5 Golden Eagle

No action would continue the practice of permitting unsafe electrical distribution lines in some locations, which could include important wintering areas and some nesting sites for golden eagle. The continuing electrocution of these large birds is expected, thought the number affected is unknown. BLM will require raptor-safe power lines on its lines for new rights-of-way. Without a program of monitoring to detect problem poles, no opportunity to retrofit and correct the problem would exist, apart from the voluntary (and largely successful) efforts of utilities such as Southern California Edison Company, that engage in this effort.

A few golden eagle nest sites would remain vulnerable to vehicle disturbance during the nesting season with the No Action Alternative. Future increased recreational use of remote mountainous areas might increase the potential for disturbance to nest sites. This would constitute a small adverse impact to this raptor.

4.8.2.6.6 Gray Vireo

Without designation of the conservation area at Big Rock Creek or the revised SEA boundaries for the Antelope Valley, the gray vireo would gradually decline in numbers and acreage of occupied habitat. This is because of an expected continuation of rural development in the foothills of the San Gabriel Mountains. The bird would probably persist within the Angeles and San Bernardino National Forests, and in Joshua Tree National Park and the Juniper Flats ACEC. Other lands with high potential for gray vireo, such as the Bighorn and San Gorgonio Wilderness areas would remain in conservation status. Hence, although the gray vireo might undergo substantial declines, it would not become extirpated from southern California.

4.8.2.6.7 Inyo California Towhee

The BLM would continue to remove feral burros from the Argus Range, eliminating the primary threat to the habitat of the Inyo California towhee. No eradication of exotic species from springs utilized by the birds would take place, which could lead to a gradual reduction in the occupied habitat. The opportunity to delist the species by undertaking pro-active conservation actions would be lost.

4.8.2.6.8 LeConte's thrasher

The range and occupied habitat for LeConte's thrasher would continue to become fragmented without positive steps to establish large, contiguous habitat blocks. Within the Plan's time frame, populations of this bird would be expected to decline at the fringes of urban centers. Without a route network for public lands, disturbance to LeConte's thrasher in the nesting season would continue, and

probably increase. It is unlikely that numbers would decrease to the point of qualifying for listing as threatened or endangered, but the No Action Alternative would be adverse to this species.

4.8.2.6.9 Long-eared Owl

Without pro-active conservation measures, important roost and nest sites for long-eared owl would be addressed on a case-by-case basis. Existing wetland laws would protect those riparian sites, but other woodland sites might be lost.

4.8.2.6.10 Prairie Falcon

The No Action Alternative would probably have no adverse affect on the overall number of prairie falcons in the West Mojave. Loss of a few occupied territories is expected. Most nest sites are in rugged terrain, often in designated Wilderness, and existing threats to the prairie falcon are minimal.

4.8.2.6.11 Southwestern Willow Flycatcher

Existing occupied habitat at Mojave Narrows, suitable nesting habitat at Big Morongo Canyon and migration habitat in the east Sierra canyons would continue to support resident and migratory populations of the willow flycatcher. However, the opportunity for expansion and recovery of this species in the Mojave River would be lost without measures to maintain groundwater levels at the minimum necessary to support the riparian habitat.

4.8.2.6.12 Summer tanager

Existing BLM management at Big Morongo Canyon ACEC would conserve summer tanager at that location. Occurrences at Mojave Narrows Regional Park are also well protected. In the remainder of the Mojave River between Victorville and Helendale, existing wetland laws would serve to conserve the riparian habitat. The Mojave Basin Adjudication, if enforced, would maintain groundwater levels sufficient to support the occupied habitat. If groundwater levels are not maintained, the riparian habitat would slowly decline, leading to a decline in the numbers and occupied acreage of habitat for this neotropical migrant. This loss would not be significant to the species as a whole, but would remove one of the larger breeding populations in the state.

4.8.2.6.13 Vermilion flycatcher

Existing BLM management at Big Morongo Canyon ACEC would conserve vermilion flycatcher at that location. Occurrences at Mojave Narrows Regional Park are also well protected. In the remainder of the Mojave River between Victorville and Helendale, existing wetland laws would serve to conserve the riparian habitat. The Mojave Basin Adjudication, if enforced, would maintain groundwater levels sufficient to support the occupied habitat. If groundwater levels are not maintained, the riparian habitat would slowly decline, leading to a decline in the numbers and occupied acreage of

habitat for this neotropical migrant. This loss would not be significant to the species as a whole, but would remove one of the larger breeding populations in the state.

4.8.2.6.14 Western Snowy Plover

The Western snowy plover is very site-specific in nesting habitat requirements. Ongoing efforts at conservation would continue at Searles Lake and Harper Dry Lake, but other potential locations, especially on private lands, would probably go undetected. Adverse impacts may take place without anyone knowing. The No Action Alternative would most likely result in increased recreation on and adjacent to playas supporting potential or undetected nest sites, resulting in a moderate adverse impact to the species.

To the species as a whole, loss of the West Mojave locations would represent an incremental loss, rather than a major cause of decline. The coastal and Mississippi River populations are now listed as threatened and endangered, and the status of the remaining populations is unclear. Because the population size is believed to be very small in the West Mojave planning area, any loss of nest sites is a significant impact.

4.8.2.6.15 Western Yellow-billed Cuckoo

Because no nesting yellow-billed cuckoos are found within the Plan area at present, the No Action alternative would present no adverse impacts on the species. However, an opportunity to restore and maintain riparian habitat and allow for the recovery of this bird would be lost.

4.8.2.6.16 Yellow-breasted Chat

Existing BLM management at Big Morongo Canyon ACEC, Whitewater Canyon ACEC, and the east Sierra canyons would conserve yellow-breasted chat at publicly owned locations. Occurrences at Mojave Narrows Regional Park are also well protected. In the remainder of the Mojave River between Victorville and Helendale, existing wetland laws would serve to conserve the riparian habitat. The Mojave Basin Adjudication, if enforced, would maintain groundwater levels sufficient to support the occupied habitat. If groundwater levels are not maintained, the riparian habitat would slowly decline, leading to a decline in the numbers and occupied acreage of habitat for this neotropical migrant. This loss would not be significant to the species as a whole.

4.8.2.6.17 Yellow Warbler

Existing BLM management at Big Morongo Canyon ACEC, Whitewater Canyon ACEC, and the east Sierra canyons would conserve yellow warbler at publicly owned locations. Occurrences at Mojave Narrows Regional Park are also well protected. In the remainder of the Mojave River between Victorville and Helendale, existing wetland laws would serve to conserve the riparian habitat. The Mojave Basin Adjudication, if enforced, would maintain groundwater levels sufficient to support the

occupied habitat. If groundwater levels are not maintained, the riparian habitat would slowly decline, leading to a decline in the numbers and occupied acreage of habitat for this neotropical migrant. This loss would not be significant to the species as a whole.

4.8.2.7 Reptiles

4.8.2.7.1 Mojave Fringe-toed Lizard

Because conservation of the fringe-toed lizard depends on protection of ecosystem processes, the No Action Alternative would ultimately lead to the elimination of one or more of the occupied habitats in the West Mojave. The population at Saddleback Butte State Park would likely be extirpated. The discontinuous occurrences along the Mojave River east of Barstow would become increasingly fragmented, and might not survive in the long term. The occurrences at the Alvord slope and adjacent to Dale Lake would probably remain in the long term, butthe habitat on the west slope of Alvord Mountain would continue to receive adverse impacts from the proliferation of existing routes.

Suitable habitat at El Mirage and northeast of Harper Lake would continue to receive a moderate level of adverse impacts from vehicle disturbance. The effect on the fringe-toed lizards (if any) at these locations is unknown.

Habitat at Pisgah Crater would become more degraded by surface disturbance in the long term. Route proliferation is evident in this area within the occupied and suitable habitat. Fringe-toed lizards at Manix and Cronese Lakes ACEC would continue to be conserved.

The Mojave fringe-toed lizard is not seriously threatened throughout its range. Outside the West Mojave thirteen additional locations support this species, and threats at these sites are minimal. Some are protected within the Mojave National Preserve and Death Valley National Park. However, this species survives in distinct isolated populations. Some evidence exists for genetic differentiation among the populations at Alvord Mountain, Dale Lake and Pisgah Crater, so loss of any one of these populations could represent a substantial loss of genetic diversity within the species.

4.8.2.7.2 Panamint Alligator Lizard

The lack of current or anticipated future threats to the isolated springs in the Argus Range and the continuing removal of burros by the Navy and BLM would mean that the No Action Alternative would have no adverse affect on the Panamint alligator lizard in the West Mojave. No eradication of exotic species from springs utilized by the Inyo California towhee that are suitable habitat for the Panamint alligator lizard would take place. Because the Panamint alligator lizard is apparently not dependent on specific vegetation, no adverse impact is anticipated.

4.8.2.7.3 San Diego Horned Lizard

About half of the range of the San Diego horned lizard in the West Mojave could be lost from long-term fragmentation of the habitat by rural and some suburban development in the San Gabriel and San Bernardino Mountains foothills. This adverse impact would not affect the viability of the species overall, since the major portion of its range is on the coastal slope of the Transverse Ranges. Conservation efforts throughout the range of the San Diego horned lizard, particularly the Natural Community Conservation Plans in San Diego, Orange, and Riverside counties are expected to result in the prevention of this lizard from becoming listed as threatened or endangered in the future or becoming extinct.

Protected habitat blocks would be conserved in the carbonate endemics area, the Junper Flats ACEC, the Bighorn Wilderness, and the San Gorgonio Wilderness. endemics area, the Juniper Flats ACEC, the Bighorn Wilderness, and the San Gorgonio Wilderness. Failure to perform route designation in the Juniper and Bighorn subregions would be somewhat adverse to the horned lizard compared to Alternative A.

4.8.2.7.4 Southwestern Pond Turtle

Although primarily a species of the coastal side of the Peninsular and Coast Ranges, the Mojave Desert occurrences of the southwestern pond turtle are of high interest. The No Action Alternative would allow for their continued occupation of Afton Canyon and Camp Cady, assuming that BLM and CDFG maintain the existing management, which includes tamarisk removal and protection of the riparian and surface water habitat. Maintenance of the groundwater in the Mojave River would remain the responsibility of the parties affected by the adjudication.

In the San Andreas Rift Zone, conservation of the pond turtles would depend on the effectiveness of existing wetland protection regulations in maintaining habitat. Urban encroachment on this habitat would probably continue, leading to a decline and possible extirpation of the pond turtles west of Palmdale.

4.8.2.8 Plants

4.8.2.8.1 Alkali Mariposa Lily

The No Action alternative would not impact Edwards AFB, where the vast majority of alkali mariposa lily plants are located. Continued development of the edges of the Rosamond Lake playa outside the base boundaries in Lancaster, Los Angeles and Kern counties, would reduce the numbers and range of the species. The occurrences at isolated springs and seeps are likely to remain unaffected. Hence, while the species overall would not be at risk of extinction, its continued survival would depend on military protection and on conservation of the few locations outside the West Mojave, such as the Kern River Valley.

4.8.2.8.2 Barstow Woolly Sunflower

Although specific threats to the Barstow woolly sunflower are few, the fragmentation of its habitat by scattered development and widespread off-highway travel is a long-term problem. Without the ACEC designation and some specific management on private, state and federal lands, this plant is likely to decline in numbers. It could become listed as threatened or endangered in the future..

4.8.2.8.3 Carbonate Endemic Plants

Mining has been the primary cause of loss of the carbonate endemic plant species in the past, and the large limestone mines are located primarily on Forest Service lands just south of the West Mojave boundary. Because the carbonate deposits are more economically developed outside the planning area, the No Action Alternative would not substantially reduce the numbers or restrict the range of the four carbonate-endemic species within the CDCA.

Completion of the Carbonate Habitat Management Strategy is assumed to be part of the No Action Alternative. This document would become agency guidance for federal actions on these species and receive a separate Biological Opinion. San Bernardino County would adopt the measures outlined in the CHMS as mitigation guidelines for County discretionary approvals. Under this scenario, mining impacts to the carbonate endemic plant species would not be significant and would be fully mitigated.

The CHMS does not address route designation within the carbonate habitat. Without management of travel on the existing routes that traverse critical habitat, adverse modification to the critical habitat is more likely. In addition, specific management of grazing where the Rattlesnake Canyon allotment overlaps with occurrences of Parish's daisy is necessary to prevent the long-term loss of these occupied habitats..

4.8.2.8.4 Charlotte's Phacelia

Lack of threats to Charlotte's phacelia make impacts of the No Action Alternative the same as Alternative A, except that without monitoring of the occurrences in the east Sierra canyons, the ability to detect declines is lost.

4.8.2.8.5 Crucifixion Thorn

Because threats to crucifixion thorn are few and nearly all known occurrences within the West Mojave are on public lands, the numbers and habitat for this species are expected to remain stable under the No Action Alternative. Alternative G is less desirable than Alternative A due to the retention of unnecessary routes crossing habitat near Pisgah Crater.

4.8.2.8.6 Desert Cymopterus

Positive conservation action is needed to prevent declines of desert cymopterus on public and private land within the West Mojave outside Edwards AFB. Without consolidation of existing routes in the Fremont, and Superior subregions into a network based on avoidance of this species, habitat and numbers of desert cymopterus would be impacted in the future. The No Action Alternative would not address other potential threats, including grazing and private land development in occupied habitat.

Lack of a rangewide plan for this narrow endemic plant could lead to its listing as threatened or endangered within the term of the Plan.

4.8.2.8.7 Flax-like Monardella

No substantial impacts are expected to the flax-like monardella from the No Action Alternative because of the light use of the Middle Knob area and remote location of known occurrences. Newly detected occurrences on Middle Knob could be at risk without ACEC designation and avoidance standards, depending on their location.

4.8.2.8.8 Kelso Creek Monkeyflower

Threats are not apparent to Kelso Creek monkeyflower on public lands, but this narrow-range plant is vulnerable to even small land-use changes, such as increased grazing, increased use of dirt roads and trails, or construction of new wind turbines. Spillover impacts onto public land from adjacent rural development on private land may be the most likely source of new habitat impacts, since the plant is found on the boundary of pubic and private lands in many places. The No Action Alternative would lead to loss of habitat and small numbers of this species in the long term, which would be significant given the extremely limited range of the species

4.8.2.8.9 Kern Buckwheat

Small areas of existing populations of Kern buckwheat are being impacted by vehicle and trail use near Sweet Ridge in the Middle Knob area. Without restoration efforts, the numbers of this extremely restricted West Mojave endemic plant would continue to decline. In addition, off-road intrusion onto the clay soil habitat has damaged one significant population and this could continue without placement of rock or bollard barriers at the edge of the open route. The No Action Alternative would lead to eventual loss of numbers and area of habitat for this species. This species currently meets the definition of rare under state law. Without positive conservation measures, Kern buckwheat could become listed as threatened or endangered in the future.

4.8.2.8.10 Lane Mountain Milkvetch

The primary potential threat to individuals and habitat of Lane Mountain milkvetch is the operations that might take place on the Fort Irwin expansion lands. It is assumed that the Army would provide mitigation for impacts on this species, and would obtain a Biological Opinion from the USFWS. Mitigation measures may take place on private and public lands outside the expansion area in the Superior Valley and on the Coolgardie Mesa. These measures would benefit the species by consolidating the public ownership of the occupied habitat.

The BLM would address potential impacts on the Lane Mountain milkvetch on public lands outside the Fort Irwin expansion area on a case-by-case basis, and would request a Biological Opinion from the Fish and Wildlife Service. Because of the very limited numbers and range of this plant, it is unlikely that any substantial ground-disturbing activities that might affect Lane Mountain milkvetch would be allowed. However, impacts from recreational activities, including off-highway vehicle travel and casual use mining, would continue. These activities degrade the habitat and could result in the loss of plants. Without route designation, signing, enforcement and potentially fencing of certain areas, the Lane Mountain milkvetch is likely to decline substantially outside the military lands. This is a significant biological impact.

On private lands, San Bernardino County would consider impacts of any discretionary action on a case-by-case basis. Land use changes near Lane Mountain and on Coolgardie Mesa are anticipated to be minimal, though the loss of even a few plants or acres for this endangered species is significant.

4.8.2.8.11 Little San Bernardino Mountains Gilia

As a local endemic restricted to a small area in the western Coachella Valley and the Joshua Tree areas, the Little San Bernardino Mountains gilia is vulnerable to habitat fragmentation and modification of the desert washes where it occurs. Without a proactive approach to protection of the limited desert wash habitat, gilia populations would be expected to decline over the long term, perhaps to the point where the plant would become listed as threatened or endangered.

A small likelihood of negative impact to potential habitat would occur without route designation in the Copper Mountain MAZ.

4.8.2.8.12 Mojave Monkeyflower

The No Action Alternative would probably have negative effects on the Mojave monkeyflower because this species is vulnerable to habitat fragmentation. Continued approval of projects on a case-by-case basis could prevent establishment of a contiguous habitat for Mojave monkeyflower. It is likely that this species would eventually be proposed for listing as threatened or endangered. The Brisbane Valley portion of the range would become increasingly fragmented as BLM lands are exchanged under the Land Tenure Adjustment Program, but the plants would probably persist in the Daggett Ridge area and the Newberry Mountains.

The No Action Alternative would be adverse compared to Alternative A in the Dagget Ridge and Azucar mine areas, where the existing network of redundant routes and routes in washes would continue to cause small harmful impacts to known populations and suitable habitat. Without an education and enforcement program, route proliferation and off road travel would be more likely in the Brisbane Valley as well, potentially damaging occupied habitat on public lands.

4.8.2.8.13 Mojave Tarplant

Lack of threats to Mojave tarplant make impacts of the No Action Alternative the same as Alternative A, except that without monitoring, the ability to detect declines is lost. Newly-detected occurrences would be conserved or developed on a case-by-case basis.

4.8.2.8.14 Parish's Alkali Grass

Acquisition of the only site for Parish's alkali grass would not be prescribed, and no conservation assurances for this species could be made. San Bernardino County would consider protection on a site-specific basis if the owners applied for a discretionary permit for land use changes. Existing wetland laws would probably result in conservation of most but not all, of the occupied habitat

4.8.2.8.15 Parish's Phacelia

Protection of Parish's phacelia would continue to be evaluated on a case-by-case basis at the time projects are considered in this area. These would primarily be utility installations and maintenance activities. BLM would impose stipulations requiring soil salvage and respreading, avoidance to the maximum extent feasible, and construction monitoring. No acquisition of the small playas and surrounding lands would take place, so that conservation of entire local range of this species could not be assured. Because development pressure on private land is very low in this area, no adverse impacts to Parish's phacelia are anticipated.

Unregulated travel on the small playas is a potential threat of fairly high risk. Such travel would lead to degradation of the habitat, and substantial loss of plants if it occurred in the growing season.

4.8.2.8.16 Parish's Popcorn Flower

Acquisition of the only site for Parish's popcorn flower would not be prescribed, and no conservation assurances for this species could be made. San Bernardino County would consider protection on a site-specific basis if the owner applied for a discretionary permit for land use changes. Because the plant is found in wetlands, it is likely that the CEQA and wetland laws would provide protection for the occupied habitat, but the surrounding uplands could become developed.

4.8.2.8.17 Red Rock Poppy

Protection of this species relies on management of Red Rock Canyon State Park. No adverse impacts are expected to the species as a whole. Without route designation in the El Paso Mountains, the occurrences outside the state park boundaries could be negatively impacted. This is relatively unlikely because travel within Mesquite Canyon does not normally stray onto occupied habitat.

4.8.2.8.18 Red Rock Tarplant

Protection of this species relies on management of Red Rock Canyon State Park. No adverse impacts are expected to the species as a whole. Without route designation in the El Paso Mountains, the occurrences outside the state park boundaries could be negatively impacted. This is relatively unlikely because travel within Last Chance Canyon does not normally stray onto occupied habitat.

4.8.2.8.19 Reveal's Buckwheat

Although conservation would not be assured, development pressures and other threats within the known range of this species in the West Mojave are few, and no adverse impacts on the species are predicted.

4.8.2.8.20 Salt Springs Checkerbloom

Acquisition of the only site for Salt Springs checkerbloom would not be prescribed, and no conservation assurances for this species could be made. San Bernardino County would consider protection on a site-specific basis if the owner applied for a discretionary permit for land use changes. Because the plant is found in wetlands, it is likely that the CEQA and wetland laws would provide protection for the occupied habitat, but the surrounding uplands could become developed.

4.8.2.8.21 Shockley's Rock Cress

Shockley's rock-cress is not threatened in the short term within the CDCA. Without a long-term protection plan, however, industrial mining is likely to adversely impact this species and contribute to further fragmentation of the habitat.

Completion of the Carbonate Habitat Management Strategy is assumed to be part of the No Action Alternative. This document would become agency guidance for federal actions affecting habitat of Shockley's rock-cress. San Bernardino County would adopt the measures outlined in the CHMS as mitigation guidelines for County discretionary approvals. Under this scenario, impacts to Shockley's rock-cress would be reduced to acceptable levels and the goal of permanent protection would be achieved.

4.8.2.8.22 Short-joint Beavertail Cactus

Almost none of the range of the short-joint beavertail cactus in the West Mojave would be conserved under the No Action Alternative. Loss of the populations in the San Gabriel and San Bernardino Mountains foothills on private lands would be expected from long-term fragmentation of the habitat by rural and some suburban development. This adverse impact would reduce the species' range to the higher elevations of the National Forests. This species could decline to the point of being listed as threatened or endangered by state or federal agencies.

4.8.2.8.23 Triple-ribbed Milkvetch

Under the No Action Alternative, BLM would continue to consult with the USFWS on projects potentially impacting this plant. Private land projects potentially impacting triple-ribbed milkvetch would undergo CEQA review, but local jurisdictions are not obligated to provide protection, as through avoidance, for listed plant species. The risk of damage to undetected populations in washes of the San Bernardino Mountains would increase without route designation. Because of the extreme rarity of this species, without surveys and avoidance and mitigation measures, it is likely that triple-ribbed milkvetch would decline further.

4.8.2.8.24 White-margined Beardtongue

Most occurrences of white-margined beardtogue are on BLM-managed land, and this plant is considered in environmental assessments of activities that might lead to loss of numbers or habitat. No significant impacts to this species are expected. Minor loss of occupied habitat may occur as a result of increased off-highway vehicle travel in Argos Wash, retention of routes crossing wash habitat near Pisgah Crater or mining development of the private land where this species is found.

4.8.3 Socio-Economics

4.8.3.1 Livestock Grazing

Cattle Grazing: Cattle grazing operations on public land would continue to be managed under the terms and conditions of the current biological opinion. There would be no opportunity for the voluntary relinquishment of grazing permits or leases that would result in the permanent discontinuation of grazing. A permittee or lessee would be able to apply for ephemeral use, and temporary-nonrenewable grazing use under the parameters of the current biological opinion. There would be no additional restrictions on the utilization of current years production.

The most significant departure from Alternative A would be the 230 lbs/acre turn out requirement for allotments in DWMAs, which would not be established. Any additional management prescriptions in critical habitat for the desert tortoise would continue.

Cattle allotments scheduled for rangeland health assessment or re-assessment would continue to be assessed and determinations written. Changes to grazing management would occur if fallback

standards were not being achieved.

Sheep Grazing: The Gravel Hills, Superior Valley, and Buckhorn Allotments would remain unavailable for ephemeral sheep grazing, but the grazing leases for these allotments would remain active. These allotments would continue to be managed under the terms and conditions of the current biological opinion. The Goldstone Allotment would also remain unavailable for ephemeral sheep grazing, however, because it is entirely within lands transferred by Congress to Fort Irwin in 2001. As a result, this allotment is no longer available for lease or management by the BLM.

Ephemeral sheep grazing operations on public land would continue on the middle and eastern units of the Stoddard Mountain Allotment, and on non-critical desert tortoise habitat in the Shadow Mountain Allotment. The Johnson Valley Allotment, currently vacant, would continue to be available for lease. The following allotments would continue to be managed under the terms and conditions of the current biological opinion, extended on May 17, 1999: Antelope Valley, Bissell, Boron, Buckhorn Canyon, Cantil Common, Gravel Hills, Hansen Common, Johnson Valley, Lava Mountain, Monolith-Cantil, Rudnick Common, Shadow Mountain, Spangler Hills, Stoddard Mountain, Superior Valley, Tunawee Common, and Warren.

Ephemeral sheep allotments scheduled for rangeland health assessment or re-assessment would continued to be assessed and determinations written. Changes to grazing management would occur if fallback standards are not achieved and ephemeral sheep grazing is determined to be the primary cause.

4.8.3.2 Mineral Development

Tortoise mitigation results in substantial costs to miners if operating within designated Critical Habitat (BLM Category I, II) or BLM Category III habitat. As with Alternative A, these measures include the requirement for compensation associated with disturbing or fencing off tortoise habitat, the use of an authorized biologist for surveys, and confining vehicle speed to 20 miles an hour. The added cost of compensation results in some operators seeking stone or aggregate from sites further removed from the market area. There is no expedited method under this alternative for issuing incidental take permits, unlike Alternative A. Thus the time and cost savings when putting a mineral project on line that expedited permitting provides would not be available. Consultation on a project-by-project basis would continue, with the exception of the desert tortoise and proposed disturbance under 10 acres that is covered by an existing biological opinion. Under this opinion, a total of 21 mitigation measures are required to avoid a jeopardy opinion. Projects that would disturb over 10 acres would require formal consultation with the FWS, a delay of up to 135 days.

In designated critical habitat for the tortoise, vehicular access may be controlled by imposition of seasonal-use restrictions for hauling and road maintenance as suggested by the USFWS Recovery Plan (1994, p. 60). This mitigation is applied on a project basis, depending on its practicality or economic impact on the operation. The seasonal-use restriction may require the operator to stockpile material at the mill or off site if the operator is to maintain year-round sales, and is workable for certain

commodities where sales volume is limited and year-round mining is not required. Because San Bernardino County is in non-attainment for PM-10 dust, projects generating dust beyond an established threshold would be required to reduce travel over non-maintained routes to 15 miles per hour.

Compensation for lost tortoise habitat is applied only in occupied habitat or suitable habitat near occupied habitat based on a formula taking into consideration the term of the project, category of habitat, impacts on adjacent habitat, growth inducing effects and existing disturbance. Sand and gravel deposits, if in or near designated critical habitat, tend to require compensation. Side hill construction material quarries, and metal and industrial mineral development in steep, rocky terrain, may or may not require compensation depending on the results of a survey. The key issue under this alternative is that while survey costs may be required for mineral development activities, mitigation costs apply only if tortoises are "affected". Areas devoid of tortoise or non-habitat areas would not require compensation mitigation or surveys under this alternative.

Presence-absence surveys are required if within the suspected range of the desert tortoise or MGS. Clearance surveys are required if tortoise sign is found or the area is fenced off. Few or no habitat protection measures are prescribed if no tortoise sign is found during the presence-absence survey. Mitigation for oil and gas leases in Category I and II habitat is based on the 1975-1982 tortoise sign surveys rather than presence-absence surveys. Such leases carry a standard stipulation allowing BLM to recommend modifications to site- specific exploration and development proposals "to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such a species or their habitat." Mitigation for site specific oil and gas activity includes fencing, compensation for lost habitat, seasonal-use restrictions, and, if necessary, disapproval if the proposal is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat.

Surveys for MGS tend to be expensive and time consuming because seasonal trapping is required. Counties require surveys for MGS regardless of whether the project is on private or public lands. This requirement affects operators on BLM land if the SMARA threshold of one acre of surface disturbance is exceeded. Impacts are the cost of hiring a biologist and delays to conduct the surveys. CDFG compensation and endowment fees are required on non-BLM land at the rate of $350 per acre.

Under the SMARA, operators disturbing over an acre of ground or removing over 1,000 cubic yards must incur the cost of a Reclamation Plan if on public land and including a Site Approval Permit if on private land, filed with the state lead agency.

No mining is occurring on land with an ACEC designation. Few contain areas of moderate to high mineral potential with the exception of Juniper Flats. Examples where costly mitigation or restrictions on access to and availability of mineral resources apply are the Rand Mountains-Fremont Valley Management Area where discretionary mineral actions are prohibited (mineral leasing and sales

from public lands), and the carbonate plants habitat requiring costly surveys and avoidance of the threatened and endangered plants.

By maintaining Research Natural Area status for the Pisgah area (instead of an ACEC), and an adaptive management strategy instead of withdrawals for Lane Mountain more access to economically viable mineral deposits would be available under this alternative. This would contribute to the sustainable development of mineral resources in the planning area, including aggregate and other industrial minerals that would be in great demand throughout the life of this management plan.

Impacts on selected areas having sensitivity to biological resources are outlined below.

Impacts on carbonate rock mining in or near carbonate plant habitat in San Bernardino County are similar to those under Alternative A. On BLM lands 1,585 acres have been designated as critical habitat for the carbonate plants. Mining on these lands would not be authorized unless the proposal received a non-jeopardy opinion from the FWS. In addition to current mitigation, including surveys and avoidance, other mitigation would be developed either by adoption of the Carbonate Habitat Management Strategy (CHMS) or through the NEPA process and consultation. CHMS management of the carbonate plants would be the same under all alternatives.

As more is learned about the carbonate plants' ability to propagate in reclaimed areas, a more adaptive management strategy, as opposed to a withdrawal, could be in place before the end of the West Mojave Plan's term. This would allow carbonate rock mining with reduced compensation and less stringent conservation requirements. Compensation may include offering to remove all plants, seeds and topsoil, and then revegetate upon completion of mining. Compensation for development disturbance may also require the operator to reclaim other disturbed areas to acceptable habitat. Successful, self-sustaining populations of Parish's Daisy and Cushenbury Buckwheat at the White Knob carbonate mine have been established as a result of current work by Rancho Santa Ana (Fife, 1999, p.466).

The Brisbane Valley population of the Mojave monkeyflower is located in an area where there is high mineral potential for gold, sericite and clay deposits. The No Action Alternative's requirements would be less costly than Alternative A, which imposes a 5:1 compensation within the conservation area for lost habitat if the mining claim were found to be valid.

Projects within the Pisgah Research Natural Area would continue to require a tortoise survey and case-by-case review if the white-margined beardtongue plant, a sensitive species, occupies the mineral project area.

Management of mining activity in habitat for the Lane Mountain milkvetch would continue to require that any surface disturbing activity requiring approval or review within the area mapped as habitat would require a survey, mitigation or avoidance if plants are found in harms way, and Section 7

consultation. Currently, dry wash sluicing is considered casual use and a plan of operations is not required unless operators drive off existing routes, dig up perennial plants, or use mechanized earth moving equipment. Noncommercial hobby gold collection could be done as a recreation activity without authorization under 43 CFR 8365.

Mitigation for sensitive bats occupying underground mines in the Pinto Mountains would include surveys by the operator and construction of bat gates. If significant bat roosts occupy proposed work areas, these bats and roosts would have to be removed by the surface managing agency.

A large portion of the Big Rock Creek sand and gravel deposit, on either side of Highway 138, is in the proposed expanded SEA boundary being considered by Los Angeles County. Future sand and gravel development would probably be severely constrained by management practices recommended by Los Angeles County which include limiting development densities, reducing the need for grading and other habitat disturbances, and retaining "rare" plant communities, including desert alluvial fan scrub and desert alluvial wash (PCR Services Corp., et al., 2000, p. vii & 3). This impact would not be noticed within the next 30 years (the West Mojave Plan's term) because the forecasted depletion date for common aggregate at the nearby Little Rock Wash fan is not until 2046 (Beeby et al., 1999).

In summary, by the year 2033 the No Action Alternative would lead more costly but relatively accessible mineral deposits. It is predicted that within 20 years, shortages of aggregate and other minerals would occur in southern California because of increasing consumption associated with increasing population, non-mineral development encumbering deposits, and depletion of more accessible deposits. In addition, high development costs associated with mitigation and limitations on access and availability of mineral deposits because of conflicts with sensitive species would result in some deposits being placed off limits to development. Borates and quality carbonate rock could become scarce by 2023, and the cost of finding, developing, and mining new deposits would increase along with the products dependant on them. These include products dependant on carbonate rock such as Portland and lime cement and ground calcium carbonate (GCC) used as extenders, whiting, coating (paper) and fillers in many products. This has implications for energy conservation, or the lack of it, because GCC makes up to 50 percent of all vehicle tires, replacing millions of barrels of oil. In many other products GCC replaces 40 to 80 percent of the resin feed stocks that are also derived from crude oil (Mark Rey, Jan. 9, 2002, Sierra Times).

4.8.4 Motorized Vehicle Access Network

Alternative G, which would not result in any changes to current management, is substantially different from Alternative A. It would maintain the existing 1985-87 motorized vehicle access network in all areas, including the nine subregions that were revised for Alternative A. While the existing network meets most access needs in more remote, less heavily used areas such as Inyo County and the Cady Mountains, the design of the network does not necessarily meet public needs in the more heavily used public in the southwestern portion of the western Mojave Desert.

The 1985-87 network is, by and large, utilitarian. It tends to be composed of long, straight routes connecting destinations, such as powerline roads. The network provides relatively little opportunity for OHV touring, that is, routes that are designed to enhance the enjoyment of the ride and the recreation experience. Touring routes tend to follow more rugged terrain, provide loops, and have serpentine rather than straight alignments. The routes often do not deviate to popular destinations, such as camping areas, overlooks and historic sites. Many of the 1985-87 routes lead to dead ends. And the network provides little in the way of challenging, technical four wheel drive routes.

The existing network entirely ignores motorcycle routes and recreation. In fact, few single-track routes were either inventoried or designated. It provides fewer opportunities for popular motorcycle tours, camping areas and other traditional activities than Alternative A.

The current network is not seamless; rather, it is composed of different components designed years apart, and the routes in any given two components (such as an ACEC network and a portion of the 1985-87 network) do not necessarily match at the boundaries. This problem is especially pronounced around the Black Mountain ACEC, where many routes simply do not connect with routes in the adjacent Fremont subregion. Other problem areas included the northern boundary of the Black Mountain ACEC and the Superior subregion, and the southern and eastern boundaries of the Rainbow Basin ACEC. Many minor "clean-up" problems exist elsewhere.

Finally, the 1985-87 inventory was, by the standards of the 2002 inventory, relatively crude. Routes were not recorded using GPS equipment (which didn't exist at that time), motorcycle trails were not accounted for, and the resources and time available to field staff were comparatively limited. As a result, the network was designed with less knowledge of the nature of the routes and the destinations access was to serve.

The following is a brief discussion of the effectiveness of the existing network in each of the nine subregions for which new designations are proposed by Alternative A. The discussion addresses these areas because they are the public lands that receive some of the highest levels of visitor use and have significant resource conflicts.

- **Coyote:** This is a lightly used area, with little motorcycle use. Most routes designated by the current network serve mining and commercial needs and utility maintenance. The network was not designed to serve recreational demands, so it is not particularly effective in providing access to popular rock hounding sites in Alvord Mountains. Its many long, linear routes provide limited opportunity for general touring, and tend to be destination oriented or lead to dead ends.

- **El Mirage:** The existing network offers very little in way of web of routes, in an area where a lack of a defined network has encouraged trespass riding on private property. Little general touring or connectivity is designed into the existing system, particularly in the Shadow Mountains, where the network is utilitarian but does not encourage, for example, enjoyable jeep

touring.

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- **Fremont:** The current network is particularly flawed in that it ignores what is considered to be one of most popular off highway vehicle areas, the region just north of Fremont Peak and the Gravel Hills. A location known as Hamburger Mill, just north of Fremont Peak, has traditionally been a very popular area for motorcycle groups to camp and tour. It is very popular with families, for it offers a wide variety of topography and trails demanding a broad spectrum of skills, from novice to highly technical. Large groups tend to congregate here. The current network doesn't provide any access in this area other than broad, four-wheel drive routes; few if any of the popular motorcycle touring routes in this area and through the Gravel Hills are open. Campsites northeast of Fremont Peak, long used by OHV groups, are particularly affected. Finally, the existing network provides poor access in the Black Mountain area.

- **Juniper:** The current network suffers from many redundant routes. While it addresses most recreation needs, it does not meet current demands for a seamless interface with United States Forest Service route networks.

- **Kramer:** This region has many old motorcycle trails dating from many decades ago. The failure to leave some of these open is particularly important in the Iron Mountains, where the current network provides utilitarian access to mines and other facilities via well-graded routes but does not provide opportunities for OHV touring. The Iron Mountains are a popular area for rockhounding, exploring historic mines, and camping, and a demand for recreation-focused routes exists and is not satisfied by the existing network. Similarly, the Kramer Hills are historically popular with rockhounders, target shooters and motorcylists. The current network provides many two-track routes but no single-track routes. Finally the region as a whole lacks long range touring routes and single-track connectivity.

- **Middle Knob:** Since the existing network was designated, considerable windfarm development has occurred in the surrounding area. The design of the network does not take these developments into account, insofar as providing a recreation experience in this environment is concerned. The current network was not designed with the needs of private property owners in mind (that is, ensuring a minimum of conflicts between recreationists and property owners).

- **Newberry-Rodman:** This area known for rockhounding. The existing network does not ensure nearly as much access to these popular rockhounding areas as the demand warrants; rather, the network tends to be utilitarian rather than recreational in focus. There is a lack of short loops, and no provision for motorcycles (although motorcycle use of this subregion is not nearly as common as elsewhere). The current network is not as effective as it could be in preventing conflicts between recreationists and livestock grazing.

- **Red Mountain:** This is a very important motorcycle recreation area. The current network is

particularly lacking in providing for this, in part because the 1985-87 inventory did not address single-track routes. The 1985-87 network effectively curtails quality motorcycle recreation experience, since the network is composed primarily of two-track and graded routes. The network lacks routes in rougher terrain around Red Mountain itself, other than in the form of utilitarian access to commercial mines and facilities. The network tends to be valley and bajada – focused, and directs visitors towards areas they can't access, such as the Grass Valley wilderness.

- **Superior:** This is an important area for 2 track or 4 WD touring. The current network, which is based upon the 1987 inventory, is lacking in providing for this type of recreational opportunity, particularly in the northwest quadrant of this sub region. Unlike the Hamburger Mill area of the Fremont sub region, this sub region is characterized by much more dispersed recreation and camping. Some of the more well-know areas include Rainbow Basin and Opal Mountain. Unfortunately, the network as described by the 1985-1987 fails to not only to adequately meet those dispersed recreation and camping needs, but also includes routes that draw visitors into Fort Irwin expansion area and into the Superior and Water Valleys, (both of which are characterized as having much higher than average densities of tortoise sign), rather than sending them elsewhere.

4.8.5 Cultural Resources

On-going impacts to cultural resources from the existing route network would continue at existing levels, much of which is described in Alternative A. In some areas, impacts from existing routes are severe and significant resources are being degraded or completely lost.

4.8.6 Cumulative Impacts

Biological Resources: Cumulative impacts of the No Action Alternative on the unique and declining species of the Mojave Desert could be very significant. Fragmentation and degradation of habitat leading to a loss of species and ecosystem function would occur in some areas, particularly the southern and western portions of the planning area.

Considering the human population growth forecasts for the West Mojave region, the fragile desert landscape cannot withstand a continuation of existing management of private lands. Using the city and county General Plans as a guide, urban expansion will extend into large areas of the western and southern portion of the planning area. The demand for new roads, flood control, utilities and industrial sites will increase. Demand for water has already exceeded supply in the Mojave Basin and other areas, and overdraft may extend to other basins within the West Mojave. The consequences of lowered water tables, modified stream channels and edge effects from urban expansion on the plants and wildlife of the West Mojave are very adverse in the long term.

Recreation pressure on desert areas will also increase. Uncontrolled recreation on public lands

is not a viable scenario for conserving important species and habitats. Without route designation and expansion of visitor facilities impacts of recreation to BLM managed lands will be adverse. The No Action Alternative would continue the pattern of off road travel on redundant and parallel roads, roads in washes, and roads passing through rare plant communities, occupied habitat for sensitive species, and designated critical habitat for listed species. Cumulatively, an excess of routes through habitat leads to slow degradation of the plant communities and overall ecosystem. Weedy species invasion is one aspect of habitat degradation that can be attributed to routes of travel. As new linear corridors are created, weeds invade further into natural blocks of habitat. Certain plant species, including Barstow woolly sunflower and Little San Bernardino Mountains gilia, are intolerant of weeds and may show declines in numbers and local range. Other animal species, including the desert tortoise, cannot receive the high nutritional value present in native annuals when the only available forage is weeds.

No action on route designation will increase the potential for off road travel. Without an education and enforcement program, and signing of open routes, the public will continue under the impression that off road travel is allowable anywhere it is possible (outside wilderness and established ACECs). Desert washes and desert playas in particular are likely to receive increased use and consequent degradation, given the demand for increased recreation in the West Mojave.

Livestock Grazing: There would be few new cumulative effects. Most cumulative effects already occurred when the stipulations from the biological opinions were implemented in the early 1990's. The new stipulations from the most recent extension may temporarily or permanently reduce livestock numbers or allotments.

Minerals: There would be minimal cumulative impacts because no new withdrawals are proposed, maintaining access and availability to mineral deposits in the area for future development. Nevertheless, survey and mitigation costs under this alternative would have a slight negative cumulative effect on mineral development when combined with the restrictions on access and availability to mineral resources currently encumbered by development restrictions under the 1994 CDPA. This is because conflicts with carbonate plants and costly mitigation such as compensation has placed some deposits off limits to mining, rendered others uneconomic, and prevented expansion of some that could otherwise have expanded or gone into production.

From a regional standpoint, the minerals situation after 30 years would be similar to Alternative A. On a local scale such as the Oro Grande area, the comparative negative effects under Alternative A would be more noticeable (see discussion in Alternative A). Commodities that would be affected the most would be construction aggregate and possibly some clay deposits that could be used in the cement industry and for specialty uses.

Recreation: Many of the designations did not necessarily take into consideration current or future recreational needs or environmental concerns (e.g. species listed since the mid-1980s) and were not developed at a time when the effects of other current planning actions could have been considered.

As a result, this alternative does little to address the cumulative effects of its actions on those changes to recreation, commercial or environmental needs that have occurred during the last two decades. These changes include a significant evolution in motorized recreation. The OHVs available in 2003 (such as dual sport motorcycles and SUVs) have significantly greater range and in many cases, greater technical capabilities for mastering rough terrain than their counterparts of twenty years ago. The routes designated under this alternative may have met the needs of early 1980s vehicles, but those same routes today do not meet the varied technical or touring requirements preferred by motorized recreationists today. As a result, this alternative's comparatively utilitarian route network is deficient in meeting the needs of today's motorized vehicle enthusiast.

To find the recreation experience they are seeking, greater numbers of visitors may travel outside of the planning area, to the NEMO and NECO planning units, where motorized networks designed with today's motorized vehicle user in mind are being implemented. Within the planning area, compliance problems could rise as these motorized recreational enthusiasts seek out or create informal routes that better meet their needs.